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Philip G. Altbach

The Perils of Internationalizing Higher Education

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The Perils of Internationalizing Higher Education

Philip G. Altbach*

This is the era of academic globalization. Asia is seeing a growing multinational trend — foreign academic institutions working with local institutions or setting up shop on their own, offering academic programs and degree "off the shelf" or based on models from Europe, the United States, or Australia. Distance education, using the Internet, is beginning to be used to deliver degrees. In a way, it is a repetition of colonial era imports of institutions and ways of thinking, but this time the foreigners are welcomed with open arms. It is time to stand back and assess the impact of the explosion of foreign higher education models in Asia.

Hardly a week goes by without a critical article in the British press concerning the "demeaning" of traditional British academic standards overseas. Similar criticism is now heard in Australia, which has been a major exporter of academic programs to Asia. The announcement in January that Sylvan Learning Systems, a for-profit American company so far mainly involved in selling test preparation, English language, and other vocational programs in the U.S. and abroad, will set up universities overseas, starting with the purchase of a Spanish private university, is a signal that the Americans, so far slow to expand overseas, will enter the market.

Internationalism in higher education is hardly new. All of the world's universities, after all, stem from medieval European institutions. In some cases, such as Japan, the western model was adopted voluntarily. In many other countries, Western institutions were imposed by colonialism. For centuries, Latin was the common language of higher education. In the late 19th century, when universities entered the research arena, German was the main language of science. Now, English has become the Latin of the 21st century, and is the most widely used medium of scientific communication and increasingly of intellectual discourse worldwide. There are well over a million students studying outside their home countries — the majority of them from Asia and studying in the United States, Britain, Canada, and Australia.

The current wave of internationalism has a late 20th century flavour. It is largely in the private sector. It is motivated by profits rather than by either government policy or goodwill. It is, for the most part, unregulated. The goals are to meet market demand, and to create a market niche for an "educational product." Those providing the product, mainly academic institutions and other educational providers in the English-speaking countries, are to a considerable extent motivated by a need to export in order to make up budget shortfalls at home.

There are a variety of educational products being sold. Foreign study remains a big business. The flows are largely from Asia to the West. Marketing is increasingly sophisticated, and despite the economic crisis in Asia, numbers continue to grow. Between 1996 and 1998, for example, students going from Korea to the United States increased by

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Monan Professor of Higher Education and Director, Center for International Higher Education, Boston College, Campion Hall, 140 Commonwealth Avenue, Chestnut Hill, Massachusetts 02467-3813.

15.5%, from India by 10.4%, and from China by 10.5%. Japan, still the largest sending country to the U.S., increased by just 1.7%, and Hong Kong declined by 11.7%. The U.S. hosts 4,81,000 overseas students, the large majority of whom pay all of their expenses. Related to foreign study are major ancillary industries devoted to teaching English and preparing students for a myriad of entrance examinations and other tests, assisting students with university applications and related formalities, recruiting enterprises, and others. Most of these are entirely unregulated.

Universities from the industrialized nations are increasingly active in offering "offshore" degrees. Newspapers throughout Asia are full of advertisements for educational programs offered by foreign universities and other educational providers. Some renowned institutions offer offshore programs. So do a range of low prestige schools or even "degree mills" that simply sell worthless and unrecognized certificates. There are many models available in today's educational marketplace, again without regulation.

"Twinning" arrangements, in which a university in Asia links up with a Western institution, is a common way of offering offshore degrees. Local facilities and often local staff are used along with some inputs from the Western sponsor. Often, a degree from the Western institution is awarded on the completion of studies. The curricular model, reading materials, pedagogical style, and usually the language of instruction of the Western institution are the core of the program, although there is little direct intellectual input from the host university. In this respect, the host institution is being "neocolonized." Students generally pay a significant premium for the privilege of studying the Western curriculum.

In some cases, the Western institution is integrally involved with all aspects of the educational program. In others, programs are "franchised" and there is little direct supervision or involvement by faculty from the "home" university. In a way, such operations are quite similar to McDonalds — an Asian vendor pays for using a "brand name" and must deliver a product designed abroad to local customers. Unlike McDonalds, quality control in the educational marketplace is spotty.

Increasingly, foreign educational providers are setting up shop in Asia without working with a local educational institution. Often, a business firm or entrepreneur invests resources to start an educational institution, and contracts with a Western university or other institution to provide the service and to award the degree. In some cases, a foreign institution will simply open a program. Again, there are few controls concerning quality, financial arrangements, or other details.

These are a few examples of the growing globalization of higher education. This phenomenon has many positive aspects. It helps serve rapidly growing demand for access to higher education. It stimulates cross-national educational innovation. It prepares students for work in a global economy. Yet, the multinationalization of higher education creates many challenges. Among them are :

- quality control — how can offshore providers be regulated and how can quality be ensured?
- information — who can tell which are worthwhile programs offered by reputable institutions and which are low quality sold just to make a quick profit?
- fit — do the programs meet a local need and do they contribute to the higher education system, and how do they relate to local institutions?
- costs and benefits — are the programs worth what is charged for them?

These questions are difficult to answer. Measuring educational outputs is difficult in the best of circumstances. Fostering international cooperation and innovation in higher education is a good thing, and imposing too many controls may stifle new ideas Yet, the current wave of multinationalizing higher education brings with it the dangers of total lack of regulation and control. It is a bad idea, in education at least, to permit *caveat emptor* to dominate. ❑

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Reshaping Management Education with Information Technology

R.D. Pathak*
S.K. Tripathi**

Introduction

The revolution in information technology (IT) is influencing the concepts and practices of industry and education system worldwide. India has recently taken a major step to absorb the IT revolution, with the constitution of its National Task Force, after opening up of its national economy to integrate with the global mainstream in 1991. In 1998, Government of India, after recognising the potential of IT for rapid and all round national development, decided to take steps that would facilitate India's emergence as an IT superpower in the future by adoption of IT as a national movement and by energizing the people of India to participate in IT movement for personal and national growth. The recommendations of 'IT Action Plan' cover a wide spectrum of issues relating to telecommunication, finance, banking, revenue, commerce, electronics, HRD, rural development and defence. They address critical national needs in the areas of IT infrastructure, Internet access, software development and exports, hardware manufacture, R&D in IT, manpower, training and education. These steps open up opportunities, for the management institutes in India, to experiment with the newer methodologies of imparting management education so as to be linked to the advances taking place in educational technology attaining global excellence.

Management education today is at the centre stage, responsible for bringing about a transformation in the economy and society of a nation by producing change agents in the form of globally competent and competitive managers. Therefore, management education has to be in a symbiotic relationship (i.e. mutually supportive and interdependent relationship) with the IT and its applications to the teaching in the form of education technology.

In India, multi-technologies co-exist. On the one hand, we have traditional institutes untouched by waves of technological revolution whereas on the other hand there are institutes with state of the art facilities of education technology. For example, there are still many institutes where the teaching is limited to chalk and blackboard based lectures whereas there are institutes having LAN, WAN, worldwise web and multimedia systems. This wide disparity in delivery of education is mainly due to lack of vision among the management education institutions (*Goel, 1997*). There is, thus, a need to develop an open attitude to using IT supported education technologies for better delivery of education, easier access to a number of knowledge sources, sharing through networks and quality distance education in the field of management. At the same time there is a need to study the influences of IT supported management education on the organisational ethos, managerial effectiveness and values i.e., a need to study an over-all effect of technology absorption in management education.

IT in Education Delivery

The technological tools for delivery of education have progressed from classroom aids like slide projector, overhead projector and LCD projector to distance education tools like audio and video tapes, radio and TV broadcasts, cable TV, tele education through satellite and video conferencing, floppy diskettes and CD-ROMs for large capacity data storage, networking via ERNET and INTERNET and a futuristic concept of bringing satellites channels directly to homes by DTH (directo to home) service. With Internet, it is possible to have the facility of exploring worldwide pool of knowledge, through the web TV, while sitting in the drawing rooms of homes. Out of these electronic tools, the broadcast TV is a very powerful medium which offers an excellent opportunity in the education delivery as the best teachers, noted personalities, and specialists can talk directly to a large number of students (*Prashant, 1997*). CD-ROMs, which run on a multimedia PC, are an ideal option for taking education to the remote areas where networking may not be cost effective. They store large amount of material in the form of documents, pictures, graphics etc. with sound and video added. Internet communication is a very strong medium of education delivery which makes the con-

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**Senior Professor and Dean of Faculty of Management Studies, Devi Ahilya University, Indore-452 001.*
***Research Scholar at the Institute of Management Studies, Devi Ahilya University, Indore-452 001.*

cept of classroom at home a reality by way of education through E-mail and web browsing on the world wide web, which is now going to be at the fingertips of millions through introduction of web TV.

By use of computers, instructional material can be prepared and stored in the machine. Advent of multimedia, which results from integration and synergy of several types of information such as graphics, animation, music, speech and video, has a profound impact on education. Compared to education on TV, multimedia systems have an extra advantage (*Negi, 1997*) of interactivity through a GUI (graphics user interface) which offers to control the response of information transfer process, according to user's pace and choice so as to dynamically interact with the knowledge base. This simulates a classroom environment in a natural way on a computer screen without the requirement of the instructor and the same material can be browsed many times by the student in a self learning process.

Technology is providing solutions for the education of physically challenged people as well. As reported by BBC web-site on Internet (Internet website at BBC news, science), the Germans have developed a technology and associated software for such people, where computer will sense the signals from the head of a paralysed person, through two attached electrodes, and, thereby, allow him to surf the net like a normal person. These facilities will transform the lives of the physically challenged.

Computer based training relieves the teachers of certain repetitive tasks such as tasking, drill, practice, information sharing and, thus, provides them time for development work, paying attention to individual student and building of concepts and attitudes. The student also moves from 'being taught' to 'learning' which brings about higher levels of motivation through frequent and unfailing feedback on achievements. This system reduces the expensive infrastructure on elements of learning and reduces time wastage in the classrooms (*Aiyer, 1987*).

These advantages of IT tools, in education delivery, dictate the need for introducing computer based training in management education which can be achieved by preparing CD ROMs on specific issues and their use on multimedia PCs supplemented by Internet connectivity for access to worldwide information. Many management books are now being published with CD ROM to provide visual supplements for the printed matter. Other than improving availability of information, extensive application of computer based training will remarkably enhance the skills of students as well as teachers, e.g., management education is becoming dependent on various software designed for business games and teaching (of finance, marketing, personnel, production etc) through specially developed software packages.

Library Automation and Networking of Management Institutions

In recent years the library community has been preoccupied with the impact of emerging IT on such functions as the maintenance of card catalogue, circulation control, interlinking loans, library networking, on-line bibliographical search, resource sharing, collection building and other library oriented activities. IT enabled media using voice, text and electronic documents are also causing significant changes. The information super highways have revolutionised life in many countries, bringing work place to home and making virtual office, virtual classroom and virtual library possible. Libraries, which upto very recent times were essentially stacking print material, have now begun to acquire electronic media like CD-ROMs and multimedia packages. In coming years, libraries will have to prepare themselves for conversion to electronic libraries, commonly referred to as digital libraries (*Kaula, 1997*).

With the advances and growth taking place in the interconnectivity of various academic institutions in India, the problems encountered in effective sharing of resources can be addressed by a computer based implementation through Internet connectivity. The information shared and accessible on Internet is estimated to be over 100 million pages. The goal of improved quality in management education, however, can be served by taking a more focused approach of building Internet that connects the management institutions similar to IIM intranet (*Bhasker, 1997*) and can be accessed by member institutions only. These Intranets may be implemented to connect management institutions in each state or those on similar common platforms. The tools necessary to share to resources will include use of Internet connectivity through DOT, VSNL or other ISPs, web browsers, web servers and security firewall as the heart of Intranet. It will require software packages for discussion forums, network based electronic bulletin boards and list servers for low volume discussion groups as well as for member institutions with limited connectivity and bandwidth. Many applications can be implemented on the management educational Intranet such as sharing of library resources, projects and research work, faculty based collaboration, student placement information and video conferencing.

Impact of IT on Distance Education

With the IT revolution, the concept of distance education for the management programmes can take a different shape. Other than normal education aids like books, magazines and journals for distant education we can now employ the modern technology aids.

Distance learning supports the objectivist model of knowledge transmission, where the knowledge is transmitted to students at different locations. From the learning theory perspective, it can be argued that distance learning supports the socio-cultural model of learning by allowing the students to remain embedded in their cultural environment rather than forcing them to adapt to a new culture (*Leider, 1995*). Distance learning facilities can be equipped with such tools so as to enable students to communicate with each other and to promote collaborative learning across distances.

Indira Gandhi National Open University (IGNOU) is the most popular open university providing management education through distance learning in the country. The revolution in telecom and IT has been guiding the concept of distance education modalities at IGNOU and now it plans to launch VSAT based terminals across the country (*Khurana, 1997*). A large number of universities across the world are already providing on-line education on Internet, with the students at faraway locations logging in whenever required to download training material available with the host computer at the university.

Desktop video conferencing systems with fully integrated collaborative software have emerged as a viable technology for creating an atmosphere of collaborative tele-learning (*Alavi, 1995*). These systems represent merging of various technologies like video conferencing, collaboration support software, and audio all packaged in a PC. The collaboration support software allows remote parties to jointly (and synchronously) work on documents, spreadsheets and graphics via an ISDN telephone call. Either party can control the application programme to make changes which are immediately reflected on both screens. This technology represents a model to mimic how two students would work jointly using their PCs at distant locations.

Teleconferencing, also known as virtual conferencing due to its interactive nature, uses TV, audio speakers, telephone and FAX technologies to provide on line interaction. It can either be two way video and audio or two way audio and one way video. The latter type is currently being used in India by IGNOU for several of its distance higher education programmes and by a few more organisations as well for conducting meetings and training programmes. Teleconferencing, apart from increasing access to higher education, is also found to provide an effective and efficient forum for meetings and training sessions. It uses satellite uplinks from the receiving ends to connect audio and video signals. Teleconferencing creates an analogue of communication form that typically occurs in a face to face conference, including paper presentation, discussion, moderation, questioning and answering etc. (*Ushadevi, 1997*).

Number of experiments have been conducted in India on educational teleconferencing, such as, ISRO-UGC Talkback experiment, 1991; INDO-US Subcommission Project Classroom 2000+, 1993; ISRO-IGNOU Teleconference, 1993; New Information Communication Technologies — a course through teleconferencing, 1994; ISNET through video technology: An innovative Indian experience, 1996; NOS - DECU - ISRO Talkback experiment, 1996 (*Goel, 1997*). Through all these experiments, attempts have been made to realise two way communication for distance education.

With this background, the impact of IT revolution can be considered to influence the concept of distance education for management institutes in the following manner:

- Teacher and student can both remain at their place of work.
- It can extend the physical boundaries of the campus beyond all limits and overcome the limit of educating only a fixed number of students in the campus.
- Concept of electronic library can save on the infrastructure requirements for maintenance of the manual library.
- Syllabus content of selected courses, and related admission procedure, fee deposition etc, can be made available at university home pages on the web-site, video cassettes and CD ROMs at the libraries of management institutions. This material can be supplied to the students over the computer networks through E-mail or by mailing of floppies, audio or video tapes and CD ROMs.
- The management institutes can use internet to supplement their distance education programmes by opening their web sites to disseminate information on the network.

- The student can seek immediate queries over the computer network and appear in the examination as and when fully prepared.
- There can be on line examinations in which student has to work through his computer replacing the traditional pen and paper examination at the examination centres.

IT Literacy

The management education needs to cater to the increased requirement of IT literacy also during its curriculum for the future managers. In the industry, managers at all levels will need to possess skills to handle IT for systematic information handling and streamlining the decision making process. The corporate world is acquiring the latest IT equipment (*Pathak & Tripathi, 1998*) and is fast becoming dependent on office automation and computer networking for easy and efficient management of information. Every management educational institution needs to conduct courses for its trainees in IT awareness for overall development of the students.

In the present times, the managers are required to handle their computers either through user friendly graphical interfaces leading or prompting them with a variety of options or they are required to transfer information in a dense computer networking environment of their organisation. Keeping these trends in view, the approach towards design of syllabus needs to weigh heavily in favour of user friendly software packages and familiarisation with information exchange in computer networking environment.

Values in the Management Education for Technology Intensive Environment

Management education needs to consider and take suitable measures to overcome certain negative aspects of technology due to the employment of modern IT in the corporate world. Employment of IT in the industry creates the need to reduce manpower, changes in power structure and eruption of new inequalities. The resultant rise in unhealthy competition leads to practice of non-ethical means in a never ending race to reach the top and thus erosion of all values. Commercial approach overtakes from the human approach everywhere with utter disregard to the consideration of the means through which results are achieved.

IT provides facilities to automate the information systems in any organisation. Automation results into flattening of organisational hierarchies and downsizing of workforce. This further enhances the competition and need for the skilled manpower. Within the corporate world, few managers acquire computer-handling expertise and others remain non-experts. The widening communication gap between these two groups (experts and non-experts) results into escalation of professional rivalry (*Rawlings, 1988*). Practice of non-ethical means by using IT tools to misuse information, to acquire the winning edge in the cut-throat competition, causes erosion of human values in these organisations. For example, computer networking facilitates access to confidential information of any organisation provided the intruder is an expert hacker and is able to break the software firewall security. Theft or damage of classified data is not an uncommon practice in rivalry of business organisations. The ambition to rise up the ladder of success makes people neglect all values and join the rat race where the rules don't exist and no means are considered unfair. In the industry, IT has improved the overall business performance but at the same time it has also caused erosion of values.

To begin the corrective actions, in overcoming this negative fallout of employing IT in the industry, we will have to modify and depend upon our management education system to ingrain the right *Sanskara* in the young minds. To achieve this aim, there is a need to introduce value education in all management institutions to prepare the minds of the management trainees (to face this threat) for taking ethically appropriate decision in every situation.

National Policy of Education (1986) has also emphasised on the values as can be seen from the following line — 'The growing concern over the erosion of essential values and an increasing cynicism in society that has brought to focus the need for readjustments in the curriculum in order to make education a forceful tool for the cultivation of social and moral values.' It also hints at advances in science and technology as being the cause of changes in the lifestyle of people as well as accompanying erosion of values. Our institutions of learning are no doubt preparing efficient individuals but not good citizens or humans. The only solution in this dilemma lies in modifying education that is rightly conceived and properly practised, and is value oriented (*Pathak & Tripathi, 1998*).

In order to protect human values, some management institutes have begun to impart value-based education. Management education and training in our country has contributed significantly in terms of providing a steady stream of trained managers. But in this progress, we have relied heavily on ideas, concepts and theories based on foreign models of management. While we should borrow ideas from any country that produces original thinking on the subject of management, we should try and adapt it to our own milieu. The management education should be imparted reflecting assumptions, values and economic considerations characterising Indian environment.

Based on the Indian ethos and current social and economic realities, following values are recommended to be included, in the given order of priorities, during management programmes in our country (*Pathak, 1987*) :

1. *Service mindedness* or concern for all segments of the society. This shall enable the students to repay the debt to some extent, which parents, teachers and the society have invested in managers while educating them in a poor country like India.

2. *Excellence in work* The managers should be trained to acquire perfection in their work. The key lies in the ability to concentrate on the work in hand at the present moment, without being distracted by the thought of results or rewards in the future.

3. *Courage* in a leader takes him towards choosing the right path with a touch of heroism. It also teaches him to be able to sacrifice and to experiment with life, without the fears of outcomes.

4. *Integration* depicts towards steady performance amidst influencing forces of public and social life. It would imply consistency in thought, speech and action.

Conclusion

With the liberalisation of economy, we are in the process of a rapid evolution from being a technologically backward country towards being at par with rest of the world in the 21st century. Transition to the new state has thrown up many challenges and many opportunities which need to be managed and exploited to reshape the education system for a better tomorrow. The capabilities of IT revolution can be harnessed for transforming the management education during this process.

The foregoing discussion suggests that the IT revolution can influence management education in many fruitful ways by providing technological tools for education delivery, such as CD ROMs on multimedia PCs, distance education through automation of libraries and use of Internet, and networking of institutes sharing resources and information. Absorption of these technologies will improve skills of students and teachers and enhance the communication process to provide faster and easier access to the knowledge sources. The changing role of teachers as facilitators also emerges as a positive outcome. The management education will need to provide higher IT literacy standards for the students to prepare them for an automated and networked industrial environment. At the same time, it will have to plant the seed of the right values and *Sansakaras* in the young minds to prepare them for taking ethically appropriate decisions in an technology intensive competitive environment. These measures will ensure higher standards of management education in the twenty first century, ensure preservation of values, build up national ethos and fruitfully exploit IT revolution towards building a promising future for the education system and the industry.

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Excellence in Teacher Education
A Challenge

Suraksha Pal*

. Phenomenal changes are being witnessed the world over. Galloping advances in science and technology have influenced every facet of society. Their impact on our daily life has been immense and has forced changes in our behaviour and our mindset. The confluence of rapid advances in electronics, computing and communication has led to the creation of what is called "Information Technology" or IT. It has brought about a situation where information, updated in real time, is available instantly to anyone, anywhere, who seeks it. It is not only technological advancement but also a socio-economic revolution that is affecting every aspect of human life. Its impact is likely to be so profound that a number of institutions of society are likely to change beyond recognition.

Due to the exponential growth of knowledge and innovations in its transmission a context has emerged wherein developing countries like India have to redefine the role of teachers to spearhead the changes that are taking place in both the economic field and the society. To successfully fulfil the desired new role/modified role calls for restructuring teacher education to ensure enhancing quality of teachers. The microprocessor and the personal computer have thrown up immense possibilities of readily available information being constantly updated in real time. In such a scenario sometimes doubts have been expressed about the teachers, as we know them, becoming extinct. In the process the face to face human interaction in the classroom will get reduced. However if the purpose of education is to be achieved this should not to be allowed to occur. Instead the role of the teacher will need to be reviewed for attainment of excellence. The progress of a nation squarely rests on the teachers as they are the most important components of educational process. That is why the first sentence of Education Commission Report (1964-66) started thus "The destiny of India is being shaped in her classrooms."

In any analysis, the teacher occupies key position and any amelioration in higher education must start with the teacher. In fact there is no substitute for a good teacher.

Teacher education owns the responsibility of preparing teachers who would be a very powerful resource of communication of knowledge and development of skills. The challenge before teacher education is posed by phrases, whether 'knowledge is power' or 'information is power' and the availability of unparalleled channels of communication around the globe.

Training of teachers is all the more important as they are engaged in a profession that demands a great deal of creative work and skills. Successive commissions, committees and other learned bodies on education and higher education have highlighted the importance of teachers' training and have recommended the establishment of a system of incessant in-service training of teachers. The Mehrotra Committee Report of UGC (1986) recommended an inbuilt structure of faculty development and promotion which has been accepted by the Govt. of India and implemented in all Indian universities. The report recommends making provisions for college and university teachers to acquire higher degrees of M.Phil and Ph.D. and also creating facilities for orientation and refresher courses for the teachers.

The four essential factors that are common to every institution of higher learning and which should form inescapable constituents in reviewing the performance of any institution are :

(i) Quality of Teaching

(ii) Quality of Courses

(iii) Quality of Examination Process

(iv) Quality of Staff Development

These four factors must be reviewed and re-engineered for increased teaching effectiveness.

Becoming an effective teacher is not a question of acquiring a bagful of tricks of the trade, but of growing into a human being skilled in the art of communication. It is indispensable to develop attitudinal skills including "effective communication" to catalyse self development, build team work, motivate and channelise human resources to resolve the dilemmas of quantity Vs quality, creativity Vs convergence, and equity Vs excellence to face the challenges of the

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**Reader, Deptt. of Educaton,*
Ch. Charan Singh University, Meerut-250 005.

twenty first century undaunted. If the teacher excercises his creative expertise in the task of teaching, he can surely rise to the occasion and be instrumental in improving quality. The teacher needs to inculcate a persistent learning spirit in his students while teaching a specified subject.

Teacher Education and Excellence

Excellence is that nurtured ability of a person which realises creative potential for undertaking assignments or works wherein he excels or shows great merit. Perfection in the performance is a manifestation of excellence.

What the teacher knows and does, is a boon for pupils. The primacy of teacher stands unchallenged. His position is central, vital and pivotal in shaping knowledge and personality of children. A teacher with intellectual stimulation metamorphoses the young generation. Hence he should not only possess cognitively systematized behaviour aquisition pattern and pedagogical skills but non-cognitive behaviour patterns should also be his concern. Teacher is a human resource. He is not only a transmitter, programmer or informer; he has to assume the role of nurturing, gardening, building scholarship, creativity, humanity, dynamism, a perfect human being with excellent creation of new knowledge.

The above perspective puts a question mark on the teacher education's objectives, curriculum, process and evaluation. Growing professionalism in teachers is becoming a problem for educationists and is being observed with shock by the society.

Teachers as produced by teacher education departments, over shadowed by computer and information technology, are proving themselves as educational dwarfs, not fully developed substantive, and dedicated teachers.

Traditionally teachers had two primary functions. The first was to provide information and the second was to interpret the information provided to convert it into useful knowledge for the students. Whereas the PC or IT may subvert the first role of the teacher, it is the second that becomes even more important. It has been claimed by some thinkers that interactive modes of IT may be employed. However, this is incorrect because such a model will have grave dangers of dehumanisation of education and the knowledge thus gained would lack adequate depth.

Society cannot survive with intermediate knowledge, in any field of human interactions. However, the need of today is to develop excellence according to the relative capacity of children. Technology may be subservient to teachers, but not an alternative for scholarship, dynamism, cognitive flexibility and socio-emotional warmth which teachers may generate in classroom situations. Technology can however help the teacher in the following manner :

- In reducing the intricacies of understanding by using projectors, videos, computer etc.
- In systematising teaching efforts.
- In making efficient use of teaching strategies, models and methods.
- In presenting information in different ways.
- In planning research.
- In developing good question bank.
- In making his peers' access to worldwide network.

Today's student is tomorrow's teacher. Hence, the best approach towards achieving excellence in higher education is to impart necessary "skills" along with the conceptional depth in the teachers.

In India, in 1966, the Kothari Commission pointed out the necessity of regular orientation courses, every year for a few weeks, in every college. IGNOU has started Diploma in Higher Education Course. The UGC has started organisation of orientation and refresher courses through Academic Staff Colleges.

Methods of teaching employed by resource persons play a significant role in developing appropriate competencies in teacher trainees. Sethumadhavo Rao (1993) has suggested strategies such as games and exercise sessions, panel discussion, brain storming, book review etc. Valicha (1993) has sugested project work, discussions etc. Lecture method is normally used by resource persons. In fact they need to use the ideal methods about which teacher trainees are to be made aware of.

Every lecturer needs to be an expert communicator. Valicha (1993) gave stress on training in use of gestures, voice dialogue, humour etc. IGNOU has brought out a video cassette on communication skills. Adequate time should be provided for development of communication skills in simulated situations like teaching skills of introducing a lesson, use of audio-visual aids, including black board, bulletin board, charts, maps, tape recorder, video cassettes, films, slides, film strips, over head projector etc.

The National Policy on Education (NPE) states that no people can rise above the level of its teachers. This statement shows the importance, the Government of India attaches to the teacher. Based on this, the Programme of Action (POA) includes several measures which are proposed to be taken not only to improve the status of the teacher but also their pre-service and in-service training. It also suggests reorganisation of teacher education programmes and as a first step calls for an overhaul of the system of teacher education in the country. The following priority programmes emanate from NPE and POA and need special attention to strengthen teacher education in the country.

- Identification of the new role and the tasks of the teacher.
- Development of criteria, tools and procedure for the selection of candidates to be admitted into teacher education institutions.
- Development of norms and standards for different levels of teacher education.
- Development of teacher education curricula.
- Development of the instructional material for pre-service and in-service education of teachers.
- Development of evaluation procedures, tools and techniques for teacher education programmes.
- In-service education of teacher educators, SCERT and DIET personnel.
- Promotion of research, innovations and experimentation.
- Criteria for recruitment of teachers.

Acharya Ramamurti Committee (1990) gave the following list of suggestions for overhauling the teacher education programme.

- Selection of students should be regulated through stringment aptitude and attainment tests and not merely on University grade or mark.
- The training programme should be competence based and there should be an integration of theory and practice for situational applications.
- Affective aspects to be taken care of so as to develop in students the qualities such as empathy, attitude towards profession, society and develop values.
- In-service and Refresher Courses are to be specific and they should be related to the specific needs of the teachers. In-service programmes should take due care of the future needs of teacher growth, evaluation and follow-up should be part of the scheme.
- Every one should be strengthened with a continuous supply of relevant learning material including journals. Provision should be made for every teacher to attend in-service programmes according to their specific needs and requirements.
- The first degree in teacher education should not be given through correspondence education.

Resistance to Excellence

- Technological innovations like T.V., Computer, Satellite and Mass communication systems have revolutionised the curriculum methodology and evaluation system of education at every level resulting into exerting a dehumanising effect.
- Reconstructionists feel that self-realization as a goal of education and group mind as a source of teaching process is missing from the educational system the world over.
- The context of such innovations also led Paul Goodman, George Dennison and Maslow to formulate the concept of humanism against inhuman environment nurtured in the educational institutions.
- An unresolved doubt haunts that with information technology entering into the every hole of education may make teacher to lose his position as a fountainhead of all information and reflective knowledge.
- It is very much doubtful whether without face to face interaction, personality development may take place, insights may be developed, creativity may be nurtured, and research having social significance may be undertaken.
- Current information and appropriate knowledge are also strategic success factors for future teachers. Teachers of the 21st Century need current cutting edge information. In a dynamic environment both information and knowledge, become obsolete, fast.
- Information that enhances socio-economic awareness is essential. Teachers must have a global perspective. Intensive and extensive information, opinions, thoughts of different experts and authorities in different subjects should be taught at teacher education institutions.
- Teacher education is not regarded as a live organism subject to debate, discussion and change in its form and contact.

- Only a teacher with his marked excellence and creative expertise can create an invigorating, challenging and stimulating environment for learning, so that the students may not feel that they are part of a crowd huddled together in uninspiring lecture classes.
- Lack of highly competent and well informed teachers who might be able to cope with the latest technological aids to revive and sustain the dull, rote, oriented system of education.
- Poor condition and quality of existing teacher education departments.
- Providing teacher education through distance mode.
- Teacher education should take care of individual needs knowledge requirements, knowledge building substance, habits, skills, thinking styles, scientific temper and socio-cultural conditions which are practically not taken care of by our respective teacher education curriculum.
- Teacher training has been more commercialised than professionalised.
- The physical facilities and teaching staff of training institutions are not adequate.
- The courses of study are out dated and do not meet the present day needs.
- Ill planned expansion of teacher training institutions.
- The internet has taken learning beyond the classroom making it truly global beyond the traditional "Chalk and blackboard" model. Learning has become a private experience, life long self driven and interactive process, focusing on community restructuring through information flow, facilitating relatively cheap interaction. Hills remarked, "students are more computer literate than their teachers today."
- Keeping in view the prominence that education has occupied on the internet, the National Open School (NOS) is also in the process of developing a web-based environment in order to enable students to have access to high quality education in this rapidly approaching era of information.
- Education and teaching are not information processor, it is not simply instructing and communicating, it is a strong resource for not only influencing and developing thinking, problem-solving, reflection, theorising and evaluating abilities but the attitudes, values, interests, desirable personality traits and other behavioural characteristics which interact with the communication of subject matter in the class. Teacher's influence is not confined to classroom teaching but outside the class also. His very presence creates a learning environment around. Can technology based education do it? Obviously no — then the question of developing excellence is outstripped? Distance learning, though, has occupied an important status as an alternative system to formal system of education due to various educational needs of society, open university is also stretching education to the door steps of those who desire to study. Such educational experiments give rise to certain very pertinent questions :

Can these systems provide education beyond information?

Can this information sufficiently handle the scholarly desire of students and teachers to be developed by teacher education departments?

Can real knowledge be developed?

Can good and effective teachers be prepared who after having been trained can influence and stimulate children to realise their potential to the full?

As the fear is mounting, this technology and computer internet may totally replace the teacher oriented system of education, can this prepare excellent doctors, lawyers, industrialists, administrators, curriculum framers, social scientists, politicians which any country may aspire for its development?

Can the body without breath survive, so how the attractive computer technology oriented system of education and preparing teachers may survive the real challenge of society without human breath?

Need of Excellence

Moonis Raza (1991) felt that the central value of academic life must be cultivation of excellence. Progressivists, reconstructionists and intelligentsia are apprehensive of the computer technology's effects on human development in specialized fields like law, medicine, education, polity etc.

Technological advancements are not capable of producing teachers who can generate humanism, tolerance, reason, advent of ideas and search of truth rather they give rise to aversions dehumanization, thrusting society into nuclear war. However, fully developed personalities like those of Einstein, Marconi, Plato, Socrates, Descartes will only be shaped by teachers whose capabilities are developed to the level of excellence. These educationists enrich the society with speculative & authentic knowledge and culturally enlightened modes of behaviour.

Teachers interact with various fields of knowledge. Therefore, their capacities and abilities have to be developed relatively to level of excellence, so, that the harmonious development of children may be possible, society may be educated and prepared for resisting unhealthy and undesirable trends occurring due to certain compelling forces and nation may be made to join the line of competitively forwarding knowledge.

Suggestions

We should think broadly and comprehensively about the issue of excellence in the present perspective of explosion of information and multimedia approaches available. The present author reflects upon it in the following manner :

- Teaching objectives and objectives of teacher education must be redefined.
- Concept of a teacher should be reformulated.
- Curriculum must be structured including such quality courses and experiences which would reinforce the development of excellence among future teacher educators.
- Classroom must be equipped to generate the socio-emotional climate.
- Teacher education programmes should be planned in a manner that it should provide sufficient scope for maximum utilization of the merit of a person, originality, spontaniety and stimulate creative potential of a student teacher.
- Emphasis should be on combining human and material resources.
- Teaching process should be based on understanding and problem-solving.
- Technology should be a help to teacher, it should not be independently used.
- The selection of teachers should be on the basis of demonstration of expertise in planning, organising, leading and controlling the teaching-learning efforts.
- Library studies must be encouraged.
- Students must be encouraged to study extra literature on the subjects.
- Exellence does not only include the cognitive manipulation but the inculcation of right attitude, values and habits.

Thus, the teacher is the shaper of the destiny of a nation, custodian of culture and torch bearer of humanity. It is being experienced that teacher education seems to be failing in its task of preparing the teachers oriented to meet the challenge of the day. It would seem as though the whole world were trying to lift itself to a higher plane of thought and there is no denying the fact that if society wants to improve quality of education, it must have quality teachers. Recognising and developing excellence among teachers is the need of the day. Teacher education must make all efforts to generate and nurture excellence among future teachers.

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Roadmap to Quality INSET

Need Based Training

Saroj Pandey*

The Context

The question of the quality of education particularly at the primary level is now very much on the world agenda especially in the developing countries. There is growing realization that, whatever we are offering in our schools today, will define the competencies and the character of the new generation which will have the responsibility of shaping and serving the society in the next century. Quality and relevance of education have now become the catchwords. In this context the teacher is considered as the single most crucial factor determining the quality of education in school. The New Education Policy (1986), Eleventh Conference of Education Minister in Barbados (1990), and the International Commission on Education for the Twenty First century (1996) observe, that, teachers are central to improvement in quality, and 'professional development and support of teachers' is viewed as most crucial area of concern. Professional development of teachers is in extricably linked to school improvement. Therefore, in the quest for school development/improvement powerful strategies are required which integrate these two areas in a way that is mutually supportive. However, to improve the quality of teachers it is essential to know the context and pressures in which a teacher has to function.

Since last two decades a number of changes and developments have taken place in the social and political arena and as a consequence India and other developing countries are facing new challenges to cope with, which put high demand on the educational system and on their teaching force.

Pressures on Teachers

At present India is in a stage of transition involving social, cultural and economic changes. It is gradually moving from tradition to modernity, from an industrial to an information society and from welfare state to liberal market economy. These have strong implications for education and put tremendous pressure on teachers.

In the social context, most obvious changes have taken place in the breaking up of traditional joint family system into nuclear family system and even smaller units of nuclear family like single child, single parent, broken homes and immigrations etc. The delicate social fabric which had integrated the family life of Indian society has become loose due to invasion and intermixing of east-west cultures. The teacher as a professional and as an intellectual cannot remain indifferent to the events that are taking place in society. The academic and social issues are interrelated and interdependent. In the contemporary context the role of teachers is no longer confined to teaching alone. The teachers are expected to play an active role in the developmental activities responding to progress of the community. They have to be professionally committed and prepared to present value based model of interaction to their learners. Teacher's education programmes, both pre-service and in-service therefore must create necessary awareness among teachers about their new roles and responsibilities.

Changing Profile of Student Population

As the population has become more mobile in recent years, the Indian classrooms are reflecting greater diversity in students' socio-economic, language, religious and cultural backgrounds etc. Consequently the teacher has to handle students who have widely verying experience, previous level of education, linguistic ability, needs and learning capacity. The teacher, therefore, has to be equipped with contextual pedagogical skills to handle classes with multi-level, multi-religious, multi-category, multi-culture and multi socio-economic background students. Our current school curriculum designed for a homogenous group of learners fails miserably to meet the demands of such heterogenous population, leaving teachers in doldrums on how to handle these situations.

Over Crowded Classrooms

Overcrowded classrooms are amongst one of the greatest pressures under which the teacher has to perform. With growing awareness among parents of the benefits of education, the size of classrooms in terms of number of students' enrolment is increasing day-by-by. An anlysis of teacher-pupil ratio from 1950-51 to 1995-96 indicates tremendous increase in the utilization of educational facilities by the student population. There has been a sharp increase in demand of education during the last one decade. Consequently, at the primary level, the teacher-pupil ratio increased upto 1:47 in 1990-91 from 1:38 during 1980s. Subsequent increase at the upper primary and high/higher secondary level was 1:38 and 1:33 in 1990-91 from 1:33 and 1:27 during 1980s respectively.

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*Reader, DTEE, NCERT, New Delhi-110 016.

The percentage increase in 1995-96 over 1950-51 has been 38 per cent, 58 per cent and 32 per cent at the primary, middle and high/higher secondary level respectively. This indicates that over the years growth in enrolment of students has outstripped the number of teachers appointed at all levels of school education. The increase has been more sharp at the upper primary level thereby indicating that teaching load per teacher increased considerably for middle teachers compared to teachers of other two levels.

States like Andhra Pradesh (TPR 1:50), Rajasthan (1:51) Tamil Nadu (1:50) U.P. (1:59) and West Bengal (1:57) are characterised by large size classes at the primary level making teaching a really challenging and difficult task for teachers. This situation gets further aggravated with teachers handling more than one class at a time. A sample survey conducted by Goyal and Chopra (1996) found that 42 per cent of primary teachers taught two or more classes at a time. More than 60 per cent of teachers taught about 50 students on average, 34 per cent between 51-100 and about 5 per cent more than 100 students. Evidently large size of classes put tremendous pressure on teachers. The pre-service training programme is more generalised in nature and hardly any effort is made to equip the teachers with relevant pedagogical knowledge and suitable instructional and management strategies to handle such situations skillfully. Hence teachers work under stress, especially those who are handling multi-grade classes.

Lack of Infrastructural Facilities

A major process factor in determining educational quality is the level of support provided by government and conditions under which teachers are required to live and work. Empirical evidence indicates, that, the difficulties relating to large size classes and multi-grade teaching are further compounded by the lack of physical facilities and non-availability of teaching-learning material in the school. UNESCO in cooperation with UNICEF commissioned a pilot survey of primary schools in 14 selected least developed countries in 1995. Finding of the survey reflect that in ten countries one third or more pupils assemble into classrooms without usable chalkboard. In virtually all countries there were no teaching aids such as wall charts and no pupil had seen a world map. In eight countries more than 90 per cent pupils attended schools having no electricity and water and one third pupils attended schools which did not have any water at all. In half the countries (mainly in Africa) over 90 per cent students did not have textbooks in their mother tongue, one third did not have textbooks in maths, one third did not have desk or writing place as distinct from just a place to sit.

The situation in India is no better than other developing countries described above. According to the All India Educational Survey (1993) only 55.44 per cent schools in the country have proper drinking water facilities, 30.18 per cent schools have urinals and 19.46 per cent schools have lavatory facilities. Only 16.14 per cent schools in the country provide separate urinals for girls and still lesser percentage i.e. 10.67 provide separate lavatory facilities to girls at the primary level. Schools often lack proper building and seating space in classes. The problem gets compounded with compulsions of teaching more than one class at a time and large size of classes.

Teacher education programmes both at pre-service and in-service levels hardly focus on specific instructional strategies to be adopted by teachers to handle such difficult situations and everything is left to teachers' own whims, skills and efficiency to deal with the situations.

Technological Advancement and Explosion of Knowledge

The closing, decade of the 20th century has witnessed tremendous growth in information technology and expansion of knowledge. Technology has not only transformed workplaces, it has also begun to transform learning and its relationships to persons and places. The very nature of information access and transfer has changed. Today's technologies have rendered information retrieval and on-line learning so quick and accessible that schools structured according to old model may well be the places where a student's learning slows down. Cable TV, electronic communication networks of all types and other interactive computerised devices are breaking upon access routes to information with explosive speed and shaping the discourse of the nation in very new way. Electronic media in all its forms undoubtedly provides today's children with more information at greater speed than does the school. However, only through the school — through organised systematic professional learning — can this information be converted into knowledge. Teachers can no longer remain neutral to the technological advancements in the society. However despite sharply increased advocacy for massive technology infusion into schools, new teachers are graduating from their pre-service teacher education institutions with skills similar to those of their predecessors of thirty years ago. Not withstanding some notable contemporary exceptions, new teachers typically enter their pre-service programmes ill equipped with technological skills and awareness and leave in much the same condition (*Brude, 1989*). In-service training programmes also hardly focus on this aspect of teacher preparedness and continue to remain traditional and stereotyped. Effective integration of technology into teacher training programmes remains rare.

Paradigm Shift in Instruction

The last few decades have also witnessed major paradigm shifts in instruction. Emerging pedagogies are more centred around what a child learns and how he learns than what the teacher teaches. There has been an emerging epistemology — learning does not involve discovering the reality but constructing the reality. Knowledge and cognition are to be constructed. Learning, therefore, is not mere passive absorption of knowledge and ideas but an "enjoying activity". Consequently activity based teaching and joyful learning have become the catchwords. Therefore today's literacy is not limited to 3 Rs only rather it also includes technological skills, wide problem solving and innovative abilities.

Teaching for such an understanding and development requires teachers to have comprehensive and in depth knowledge of subject matter, competence in representation and manipulation of this knowledge in instructional activities and skills in managing classroom process in a way that enables students learning.

Teachers of tomorrow will need skills for creating learning experiences that enable students to construct their own knowledge in powerful ways. They will also need to understand and use a variety of more authentic and performance based means of assessing students' knowledge and understanding.

It is obvious from the foregoing that today's socio economic and technical climate demands more complex type of adaptive teaching — Teaching that is reciprocal, responsive and attentive to the needs of learners, as well as teaching that is prepared to accommodate far more challenging learning goals. However, analysis of teacher preparation programmes against this landscape restablishes the divorcee between what is taught at teacher preparation level and what teachers are expected to do in the classroom.

Therefore teachers' continuing education through periodic in-service training programmes remains the only instrument for quality improvement in education. Research evidence indicates strong linkage between the opportunity for professional development of teachers through in-service training and quality of education. However with a few notable exceptions, most of the in-service training programmes are sporadic and disorganised. It presumes that all teachers are precisely of the same background, belief, knowledge, technical fineness and teaching style. Teacher complaints of meaninglessness and irrelevance of in-service education programmes have generally been acknowledged in spirit and ignored in practice. The mismatch between the contents of training and the socio cultural-educational contexts in which teachers are actually required to function nullifies the effort made in the direction of quality improvement of education. Past experiences have shown that in-service training of teachers is more of a number driven exercise with emphasis on meeting the targets and adhering to policy recommendations than to focusing on problems faced by teachers.

The linkage of teacher training institutions like DIETs and SCERTs with schools of their catchment areas is almost missing at present and hardly any systematic effort is made to identify the training needs of various target groups before organising a training programme. Even if some efforts are made it is only on individual motivation and in a very adhoc manner. Hence very little impact of training is visible in the quality of school teaching.

Figure 1 provides a roadmap of teacher's journey for professional development.

Improving the Quality of INSET : Systems Approach

A systems approach, therefore, needs to be adopted to improve the quality of In-service Training (INSET). This includes identification of training needs of various target groups functioning in variety of educational and socio-cultural contexts, analysis and prioritization of needs to be handled first and then designing the training curricula accordingly. This training programme should be implemented for professional development of concerned teachers and continuously monitored at each stage from the selection of relevant topics to suitable resource persons, transactional/strategies and adequate physical facilities etc. It may provide formative feedback to the organisers of the programme to modify the programme according to the needs of teachers. However a summative evaluation at the end of each training programme may help the organisers to ascertain

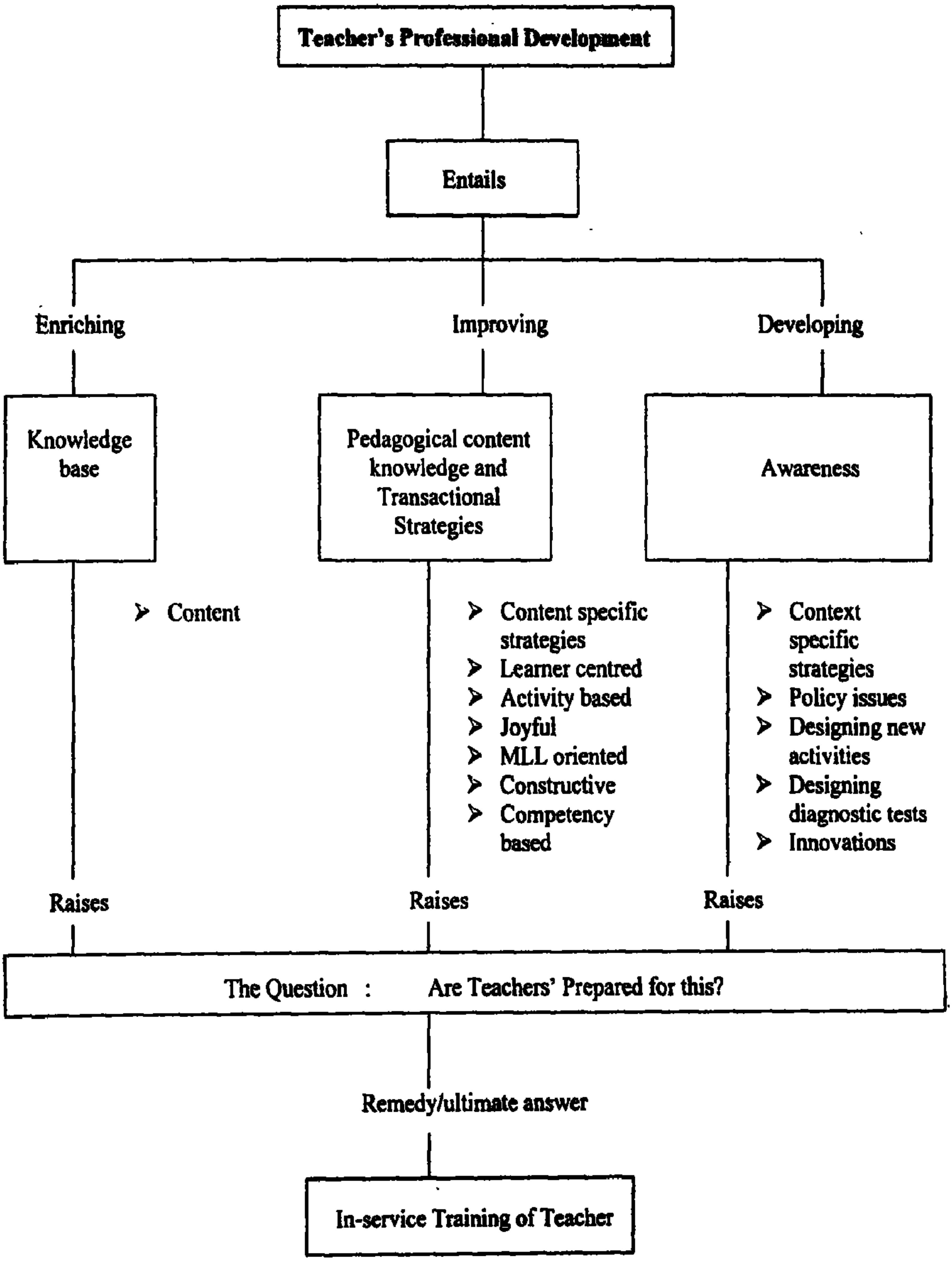
Teacher's Professional Development
Entails
Enriching
Improving
Developing
Knowledge base
Pedagogical content knowledge and Transactional Strategies
Awareness
➢ Content
➢ Content specific strategies
➢ Learner centred
➢ Activity based
➢ Joyful
➢ MLL oriented
➢ Constructive
➢ Competency based
➢ Context specific strategies
➢ Policy issues
➢ Designing new activities
➢ Designing diagnostic tests
➢ Innovations
Raises
Raises
Raises
The Question : Are Teachers' Prepared for this?
Remedy/ultimate answer
In-service Training of Teacher

Figure 1 : Teacher's Journey for Professional Development

the handspots of training and identify needs of future in-service training programmes. The afforesaid description has been summarised in Figure 2.

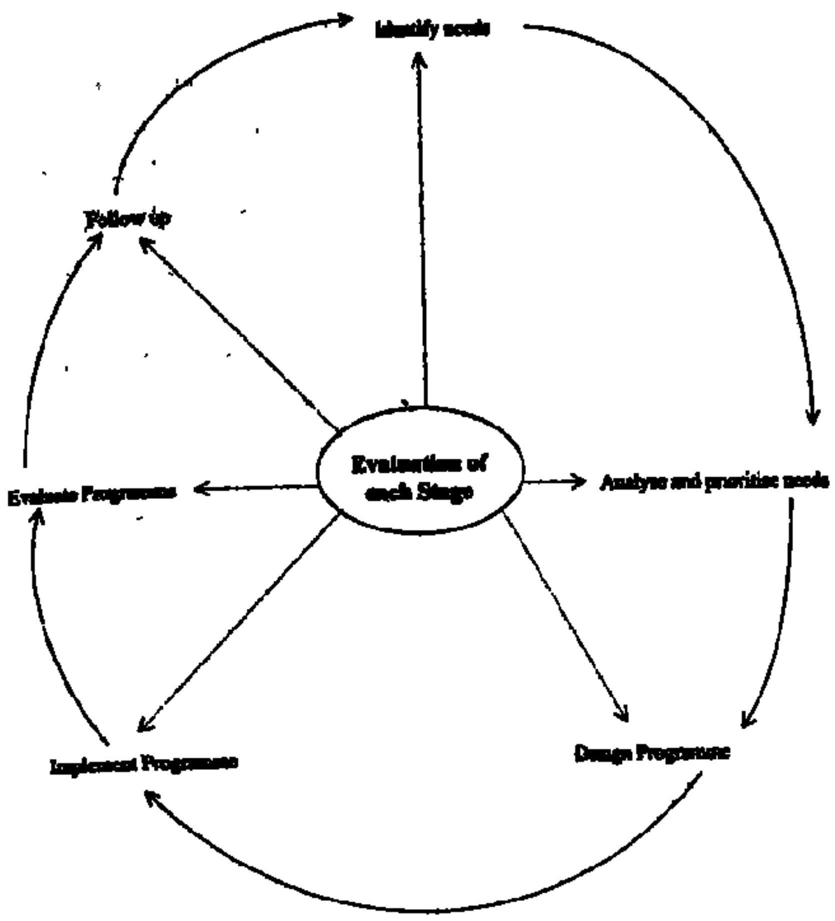

Figure 2 : Professional Development of Teachers : System Approach

Need Based Training

It is evident from the figure and description given above that, any in-service training programme aimed at improving the quality of teachers' performance should be based on felt needs of teachers. It will help in hitting the target at the right spot and yield fruitful results. Need assessment helps to relate training to the objectives and contexts of schools. Recent years have witnessed a progressive change in the perception regarding necessity of identification of training needs of teachers. Organisers of training programmes are now more receptive to the views of teachers regarding their training needs as it is felt that the training proposed, should be result of an identified need and not the consequence of the perceptions of training organisers.

Evidently any effort in the direction of need assessment should address two basic question. Needs in which area? And what should be the mechanism/procedure of need assessment?

Areas of Training Needs

It is observed, that topics of immediate concern to practitioners have greater impact on their classroom practices, because it provides direction to solve multifaceted problems they are confronted with in their day to day professional life. These relate to both content knowledge as well as adoption of suitable transaction strategies. Teachers also need orientation on the techniques of handling effectively various contextual issues in which they are placed. Besides teachers should also be aware of the developments taking place around them especially due to policy changes of government from time to time.

Professional development needs therefore may be categorised as follows :

Content knowledge related Needs

Content knowledge consists of an understanding of key facts and concepts, principles and explanatory framework in the discipline and rules of evidence and proof within the discipline. Teachers like students interpret experience through the filters of their existing knowledge and belief. A teacher's knowledge and beliefs about a subject matter and teaching-learning, thus, are important determinants, of how that teacher teaches. Research studies conducted in India and abroad establish strong influence of teacher's content knowledge on his/her classroom performance and pupil achievement (*Harbison and Honushek (1992) Smith and Neale (1989), Schulman (1996), Ball (1988), Carlson (1991), Fennema and Franke (1992)*. Research evidence indicates that teachers often lack a strong foundation of subjects they teach. Ball (1990) observed that teachers have misconceptions and gaps in their knowledge domain similar to those of their students. Studies of Harbison and Hanushek (1992), Basheer (1994), Gupta (1996), Arora, Raj Rani and Pandey (1998), Gupta, Sharma and Bhattacharjee (1996), Mohapatra (1992), Lalitha and Sharda (1997) reveal several shortcomings in content knowledge of teachers teaching mathematics, Language and environmental studies I and II at the primary level. Limited subject mastery severely affects performance of teachers, especially in view of explosion of knowledge, teachers need to update and upgrade their stock of content knowledge on regular intervals. Content enrichment programmes through in-service training may equip the teachers to review gaps in their knowledge domain and help students achieve academic excellence.

Pedagogy related Needs

Subject matter knowledge alone is insufficient for teacher's work. Teachers require knowledge of the subject supplemented with the knowledge of students and of learning; knowledge of curriculum and school context; and knowledge of teaching. Shulman (1986) called this specialised body of knowledge for teachers 'pedagogical content knowledge'. It consists of how to represent specific topics in ways appropriate for the diverse abilities and interests of learners (*Borko et.al. 1991*). Grossman (1991) describes that "If teachers are to guide students in their journey into unfamiliar territories, they will need to know the domain well. Both knowledge of the content and knowledge of the best way to teach that content to students help teachers construct meaningful representations, representations that reflect both the nature of the subject matter and the realities of students' prior knowledge and skills (p. 203)."

Research evidence establishes poor pedagogical content knowledge of teachers. Researches on teachers' questioning technique (*Carlson, 1988*) assessment practices (*Enderson, 1995*), and maintaining productive discourse in mathematics classrooms (*Manouchehri, 1996*), and curriculum decision making (*Leinhardt and Smith 1985*) support this perception. The teacher should be able to help students to relate their content knowledge to their day to day activities. Further due to advancement of knowledge and technology, the pedagogy of teaching is fast changing from teacher centred approaches to more learner centred approaches with considerable freedom to learners to experiment on their own. The teacher, especially at the primary level, is expected to adopt activity based joyful learning strategies to assist pupils to reach the level of mastery learning. The emphasis on MLL and continuous and comprehensive evaluation calls for suitable interventions through in-service training programme on recurrent basis.

Context related Needs

Talbet, Mchanghlin and Rowan (1993) observed that a teacher's choice about classroom practices at any point in time is not simply a product of knowledge... but depends upon assessment of the feasibility and desirability of particular practices in specific instructional setting. (p. 40). Large sized classes, multi-grade classes, classes having multi-culture, multi socio-economic, multi-linguistic background of students and slum and rural classes demand separate instructional practices and classroom management techniques. These contexts are hardly addressed in existing in-service training programmes and even if these topics are taken they are given very superficial, theoretical and shabby treatment. Therefore, they are unable to help teachers effectively. Proper need assessment and organisation of suitable in-service training programme in this area is the need of the hour.

Awareness related Needs

These needs are generally taken care of in different training programmes. However, at times due to policy changes of government it becomes essential to organise special in-service training programmes for teachers to sensitize them on these policy issues. During last decade two major centrally sponsored schemes have been implemented with the objective to sensitise teachers at different levels of education on various policy issues and emerging pedagogical concerns. The 'Programme of Mass Orientation of Teachers' (PMOST) was executed during 1986-89 to create awareness and appropriate climate for the implementation of NPE (1986). It was the first mass training programme covering all states and union territories in India. Adopting a three tier cascade approach to training, the programme covered 1.7 million teachers. During the eight plan, another centrally sponsored scheme, 'Special Orientation Programme for Primary Teachers (SOPT)' was implemented in 1993-94 to orient primary school teachers on the use of MLL based, child-centred approach and Operation Blackboard materials. The scheme is still in operation and has been extended to Ninth Plan in persuance of the demands put forth by many states. These programmes have succeeded in generating considerable awareness among teachers on policy issues and emerging pedagogies.

Technique of Need Assessment

Teachers' training needs falling into four broad areas i.e. content upgradation, fine tuning of teaching skills, contextual strategies and awareness of emerging concepts, issues and principles may be identified with the help of a number of data gathering devices. These have often been characterised as qualitative and quantative devices of need assessment. They have, some times, also been called as 'obtrusive' or 'unobtrusive' devices for need assessment. Some of these devices like diagnostic/achievement tests, questionnaires, interviews, focus group discussions etc directly intervene the problems, while measures like classroom observation, appraisal reports and analysis of pupil's answer script etc provide qualitative data through which training needs can be inferred. Various quantitative and qualitative tools are presented in Figure 3.

While selecting any of the need assessment techniques it should be kept in mind that the purpose of the need assessment is what dictates the type of data needed, the type of data needed is what dictates the data gathering instrument, and the data gathering instrument will dictate the data gathered. In nutshell the method selected, needs to be in harmony with the purpose of the assessment. For instance, if the purpose of need assessment is to evaluate the con-

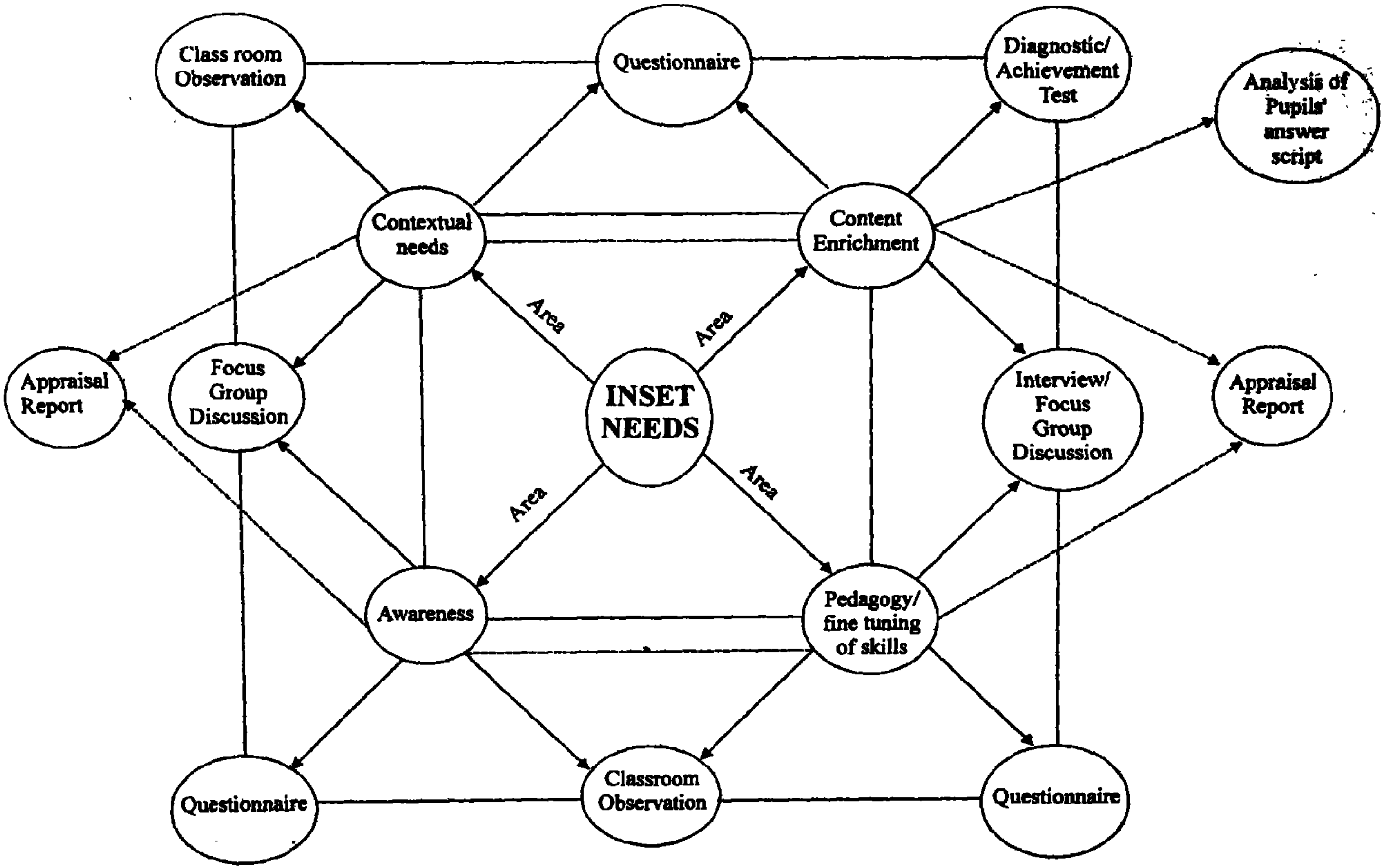

Figure 3 : Techniques of Training Need Assessment

tent knowledge of teachers, with the intention to organise a content enrichment training programme, the trainer will have to choose suitable instrument to gather data on teachers' content knowledge. In such a situation an achievement or diagnostic test on the subject may yield useful data, classroom observation and face-to-face interview with teachers may also provide necessary information to the trainers on teachers' content mastery. While, if the purpose of training is fine tuning of pedagogical skills, devices like questionnaire and observation may be more useful.

In this context it needs to be remembered that use of content based achievement/diagnostic tests for teachers is likely to be strongly resented by the teachers, as they may feel threatened and consider it as unauthorised intrusion in their academic freedom. Therefore tests of teachers should be used taking them in full confidence. Construction and analysis of achievement/diagnostic tests is also time consuming process.

Besides these generally popular techniques of need assessment, the self appraisal of teacher and appraisal report of reviewing authority may also be used in identifying the strengths and deficiency of teachers in content and pedagogies. However these reports should be free from personal prejudice and bias of reviewing authority to serve a fruitful purpose. The hardspots of teachers assessed through appraisal reports should therefore, be substantiated by independent and objective inquiry by the training organiser.

Analysis of pupils' answer scripts may throw some light on the common weaknesses in pupils' learning and may serve as pointers to teacher's inability to transact the concept appropriately. However, interpretation of teacher's effectiveness and training needs on the basis of pupils' performance is highly debatable. King (1981) feels that the evaluation of teachers will be grossly insufficient if sole criterion of success is the final achievement of students. Millman (1981) has supported this further, in suggesting, that, the extent to which a pupil learns in the school is a function of many different conditions of which the teacher's mode of operation is only one... the teacher factor may well account for only small amount of the difference in achievement. Millman suggests that home encouragement of learning, parent participation, the development level of the child, genetic endowment and learning resources play a major role, both, in the process and product of teachers.

Travers (1981) also shares the same sentiment as observed by King and Millman and argues, that, what a student learns depends on many variables outside the control of school organisation or teachers such as the SES, family environment, neighbourhood, and peer group of student. Above all his/her own personality makeup, intelligence, previous instructional treatment etc also play crucial role. Further learner outcomes are commulative, therefore, it is difficult to isolate the effect of any one teacher on students' performance.

Therefore pupils' learning achievement as a tool for training need assessment should be used with utmost caution.

Following conclusions may be drawn from the above discussion which may serve as guiding factors in training need assessment.

- Training needs fall into various areas of teaching which need to be determined at the onset of need assessment.
- The teachers may be aware of a few of their training needs such as in the area of their content knowledge and pedagogical skills, however they may be totally ignorant of few needs especially those falling in awareness category due to their limited exposure. Therefore this fact should be borne in mind.
- The instruments to be used for need assessment should be determined by the purpose of need assessment and type of data needed.
- No single method is enough to collect all information; suitable combination of quantitative and qualitative devices may therefore provide comprehensive and useful information.
- Teachers should be taken in full confidence before using any need assessment instrument. It should be non-threatening to teachers and they should be provided feedback on the results of need assessment.
- Proper interventions should follow need assessment and follow up of teachers is must to ensure quality improvement in education.

A strong network of training institutions and linkages with schools of their catchment areas may help in continuous flow of information, and bridge the gap between in-service training and classroom realities, thereby, improving the quality of inservice training and quality of education at large. ❑

The Ideal of Education

Justice A.M. Ahmadi, Former Chief Justice, Supreme Court of India, delivered the convocation address at the 9th Convocation of Dr. B.R. Ambedkar Open University, Hyderabad. He said, "The ideal of education is that which prepares for direct self-preservation; that which prepares for indirect self-preservation; that which prepares to recognise and concede the rights of others; that which prepares to shoulder obligations; that which prepares for responsible citizenship; that which prepares for parenthood; that which prepares for other refinements of societal membership." Excerpts

Every University is a place of learning where the pursuit of knowledge is ever continuing. Being a continuing process, even teachers are at once senior students, and teachers to junior students, both are in their own way engaged in the pursuit of knowledge. Education is a never ending process, no matter whether you are in a University or engaged in a profession; your thirst for knowledge must never die because once the desire to acquire further knowledge dies, the individual is more dead than alive. I therefore describe a convocation as a milestone of a long journey where we stop to assess our progress thus far and then proceed to cover the distance yet to be covered to reach the desired goal. We live in an ever changing world. No University can train its students for an unknown situation but can only prepare them to face challenges with confidence. This means degree is not an end in itself but only a beginning of a continuous process of learning.

The ideal of education is that which prepares for direct self-preservation; that which prepares for indirect self-preservation; that which prepares to recognise and concede the rights of others; that which prepares to shoulder obligations; that which prepares for responsible citizenship; that which prepares for parenthood; that which prepares for other refinements of societal membership. These elements do not constitute separate compartments; they are intricately entangled and inextricably woven to create a responsible and disciplined member of a civilised society.

In a country where a large segments of people are denied education because of economic constraint, where even the Central Government failed to give effect to Article 45 of our Constitution which enjoins the government to provide free and compulsory education upto the secondary level within ten years, even after the expiry of four decades, until the Supreme Court had to convert it into a fundamental right, you are the fortunate few who have had opportunities to receive higher education. What you have paid by way of fee is just a fraction of what society has spent on your education and therefore always remember that you have a certain obligation to discharge towards society which you may discharge at an appropriate stage in life when you have made adequate provision for self-preservation. Every society comprises people with different backgrounds and characteristics. Bhartrihari in verse 64 of *Niti Satka* divides them into (i) *Satpurush* (good citizens), who eschew their own interest for the welfare of others; (ii) *Saamanya purush*, ordinary people who work for the welfare of others without scarificing their own interest; (iii) *Maanav rakshas*, demons who destroy others to satisfy their own interest; and (iv) those whom he found difficult to describe because they would enjoy destroying the welfare of others even where their interest is not involved. If you turn the pages of the newspapers every morning, it would appear that the number of those belonging to the first category is shrinking and then number of those belonging to the third category is on the increase. Even otherwise in every society people belonging to the first category are always in a minority, but it is a pity their number is further shrinking. One obvious reason is lack of proper liberal education. Education is not expected merely to enhance knowledge and provide information but is also expected to build the character of students and make them good citizens. Character building is an essential feature of education because education devoid of character can prove to be disastrous. Bertrand Russel said "with every increase in knowledge and skill, wisdom becomes more necessary, because every such increase augments our capacity for evil if our purpose is unwise." Unfortunately our education policy has not paid sufficient attention to this important element of education.

Every educational institution must endeavour to inform its students of a set of values they must assimilate in their personality which must guide them in future. Character comprises bundle of basic values which every member of civilised society must possess to ensure harmony in society. This would not be possible if life of man in society remains unregulated. Peace and security cannot be expected in a society which is not regulated. Respect for law and respect for the rights of others is an essential feature of a civilized society. In fact, to what extent a society is civilised is measured by the extent of protection it offers to its deprived members. Dr. Rajendra Prasad, while addressing the Constituent Assembly on 25th November 1949, spoke thus :

> *"If people who are elected are capable and men of character and integrity, they would be able to make the best even of a defective constitution. If they are lacking in these qualities, the Constitution cannot help the country. India needs today nothing more than a set of honest men who will have the interest of the country before them."*

How true. Do the vast majority of our elected representatives satisfy this requirement of character? The importance that Dr. Rajendra Prasad attached to character cannot be over emphasised. The present-day malady of the country is the want of those who represent the people.

If the real objective of education is enlightenment, it must ultimately aim at creating an enlightened society or what is generally described as a civilised society. A society, in order to be civilised, must be well regulated; where every member is disciplined and abides by the regulations made by the society, regardless of his own needs or beliefs. Unless every member of the society develops a spirit of tolerance and sacrifice and is willing to subordinate his own interest to that of the community at large, regardless of caste, creed or community and abides by the values of justice, liberty, equality and fraternity, the four pillars of our constitutional edifice, real freedom and democracy will remain a distant dream.

Can a society which is in constant turmoil, where one segment strives to deny to the other equal rights and opportunities, ever develop into a mature democracy? In 1945, Mahatma Gandhi, while replying to Pandit Jawaharlal Nehru observed :

> *"The real question according to you is how to bring about man's highest intellectual, economic, political and moral development. I agree. In this there should be an equal right and opportunity for all."*

Gandhiji saw the need to emphasise the concept of 'equality' as he was conscious that intellectual, economic, political and moral development would not be possible unless every member of the society had an equal right and equal opportunity to compete regardless of caste, creed and community. Our Constitution makers laid emphasis on equality which is found reflected in Articles 14, 15 and 16 of the Constitution. Our aim being an egalitarian society and a welfare State, it hardly needs to be stated that the purpose of development must be improvement of the quality of life of our citizens. The quality of life cannot improve unless we inculcate a sense of oneness, social justice and healthy competition in our citizenry. Development for a social purpose requires transformation of society which can be achieved by change of social values and attitudes. And this change must come through peacefully and in an orderly manner and not through force or coercion.

Have we in the five decades of our independence moved in the direction of bringing about the desired social transformation to achieve the desired objective? Unfortunately, in the five decades of our independence, instead of bringing about oneness, our political bosses have been responsible for fragmenting society on the basis of caste and religion, the haves and have nots and in the recent past there has been a concerted militant effort in that direction for purely political reasons. The political bosses are either too weak to nail those who indulge in such nefarious and mischievous activities or are deliberately turning a Nelson's eye in the misplaced hope that they will benefit politically. This has left a sense of insecurity among a section of our people.

If 'peace and security' have been regarded as Law's goals, they would be empty concepts if lumpen elements can target their preys with impunity. Instead of moving in the direction of raising the standard of living of the masses, reducing the disparity between classes, spreading education and ensuring equality of opportunity to all groups, particularly the weaker sections like women, SC/ST etc., we are drifting away from these goals. Similarly, instead of securing harmony, we are dividing our society. How then can we expect development on the desired lines? This menace has been introduced in academic life also and student unions are based on political groups which have been responsible for spreading the cancer of casteism and communalism in educational institutions also. Surgery is needed to remove this cancerous growth from our schools, colleges and universities, if we are desirous of healthy growth.

Mahatma Gandhi and those whom he inspired looked at our freedom struggle as part of larger design to remould our society by eradicating povery and to shake off various forms of superstitions, social discrimination and injustice. This spirit was maintained by our Constitution-makers also. This is manifest from the Preamble and the other provisions of our Constitution. Our fundamental rights guarantee certain freedoms and prohibit discrimination on grounds of religion, race, caste, sex or domicile. Our Constitution-makers were broad-minded persons and they hoped that the successive governments will endeavour to transform society in keeping with this spirit. But Alas, that has not happened. We have strayed away from those objectives and indulged in violence. Over the years, there has been a gradual souring of respect for law and in the recent past it appeared we were sliding towards chaos. Small groups of people took law into their own hands to impose their will on the community. Mercifully,. there is some respite but we do not know if it is a lull before the storm. The Rule of Law is in crisis as never before and freedom consequently is in the direst peril. We cannot be complacent and we cannot allow a handful of people to blunt the efficacy of the law. By our complacency, we will permit impoverishments of our great heritage. The younger generation must raise the warning voice in a loud chorus to deter those who show scant respect for law and use violence as their weapon to imperil societal 'peace' and 'security'.

Having failed to achieve the desired social change, I wonder if we have secured real freedom and true democracy. Part III of our Constitution has guaranteed certain rights which can be equated to human rights. But the question is whether the vast majority of people really enjoy those rights. A tiny minority, which can afford to knock at the doors of the courts in India, may be able to assert and enforce the given right but the vast majority of our people are silent sufferers to their violation. In these fifty years, we have not been able to introduce a culture of respect for the rights conferred by the Constitution or human rights. Has the attitude of our police force changed for the better after independence from what it was during the British Raj? The same inquiry can be made in regard to the bureaucracy. In a democracy, the people are the true sovereigns. 'We the people' says the Constitution. But what is the treatment meted out to the people when they visit the police station or any government office for their work. Is any police officer or government official conscious of the fact that the person standing before him enjoys certain fundamental rights guaranteed by the Constitution. True freedom will be realised only when every public servant is conscious of the fact that he is the servant of the people and he is duty bound to respect their rights without the need to even assert them. The *maai-baap* culture must be replaced by a culture of respect for the fundamental rights of others. Leon Dugit, the famous French Jurist, in his book *Law in the Modern State* observed :

> *"The idea of public service replaces the idea of sovereignty. The State is no longer a sovereign power issuing commands. It is a group of individuals who must use the force they possess to supply the public need. The idea of public service lies at the very base of the theory of modern State. No other notion takes its roots so profoundly in the facts of social life."*

Is ours a true democracy? What is the type of democracy envisioned by the Constitution? On account of paucity of time, I will not embark on an analysis of the various provisions of the Constitution to show that the Founding Fathers had sought to introduce a liberal democracy. This is clear from the Preamble of the Constitution, the Fundamental Rights, the protection granted to SC/ST and backward classes, the removal of untouchability, the minority rights, the emphasis on economic upliftment of the poor and removal of socio-religious restrictions, to quote a few. Added to these are the concepts of equality, protection of life and liberty, non-discrimination, protection to women etc. All these taken together, leave no doubut in my mind that our Constitution-makers were very broad-minded people and they envisioned a liberal democracy for our country. But Alas! after the initial years, power gradually slipped in the hands of people who did not adhere to these values. Petty politics began to take its toll and gradually communal-and-caste based politics raised its ugly head. Tolerance gave way to belligerence and in recent times resort to violence in the name of culture tarnished our country's image internationally. Liberal democracy has been replaced by illiberal democracy. The damage is extensive but not irreparable if all of us join hands to restore our democracy to its pristine glory. ❑

MINISTRY OF HUMAN RESOURCE DEVELOPMENT
(DEPARTMENT OF EDUCATION)

EXTERNAL SCHOLARSHIP DIVISION

IRISH GOVERNMENT FELLOWSHIPS-1999

Applications are invited on plain paper in the prescribed format from Indian nationals for award of Irish Government Fellowships for 1999 as per details given below latest by **15th July, 1999 (Thursday)** :

Post-graduate Diploma/ Masters Degree Courses	**Qualifications**	**Course objectives**
a) Post-graduate degree in Hydrology (2 Fellowships)	First class Honours graduate either in Engineering or with a suitable combination of science subjects including at least 2 years of University Mathematics.	Training for personnel involved in water resources planning. water supply, environmental monitoring and pollution control, flood forecasting & flood warning, and design of hydraulic structures.
b) M.Sc. (Agriculture) in Environmental Resource Management (One Fellowship)	First class honours degree in Science or other subjects related to Agriculture Science.	Training in the development and utilisation of natural resources. It is concerned with the rural regional resource planning and environmental protection.
ii) M.Sc. Community Health (One Fellowship)	First class Bachelor's Degree in the related subject field.	Suitable for Doctors, Administrators, Social workers and other Health professionals.
iii) Diploma in Compensatory and Remedial Education (One Fellowship)	First Class B.Ed. degree with two years teaching experience as on 30.9.1999.	To equip the teacher with the necessary conceptual framework and the skill to identify learning difficulties and to plan effective programme for pupils.
iv) Master's Degree in Development Studies (One Fellowship)	First Class Honours degree in relevant discipline.	To provide an inter-disciplinary understanding of the process of development and to equip participants with a range of skills to enable them to work effectively in the field.

Age : The age of candidate should not be more than 33 years as on 30.9.1999.

Duration : One Academic Year except iii) where it is 1½ years.

Date of commencement of course : September/October, 1999.

Value & Passage cost : These scholarships provide for the cost of travel from India to Ireland and back, all University fees and a living allowance for the duration of stay in Ireland. In addition smaller allowances for books, preparation of thesis, warm clothing etc are provided, as per the Irish Government Fellowship rules.

The following documents must be attached with the application :

a) One recent passport size photograph of the candidate must be affixed on the prescribed application form. b) Attested copy of Certificate certifying the date of birth of candidate. c) Attested copies of all degrees/diplomas/certificates/mark sheets etc. d) Sponsorship certificate from employer, if employed. However, advance application complete in all respects alongwith other required documents will be considered provisionally pending sponsorship by employers. e) Candidates must indicate, on plain paper, their plan for employment on completion of this fellowship.

Note : 1. Candidates who have been abroad for study/specialisation/training either on a scholarship/fellowship or on their own for a period exceeding six months are eligible to apply only if they have been in India for at least two consecutive years after their return from abroad. 2. Applications of candidates who are at present staying abroad will not be considered. 3. Applications not on the prescribed format and without necessary documents/papers will not be considered. 4. Candidates should have adequate knowledge of India and the donor country. 5. Preference will be given to candidates who are in Post rather than those who are involved in ongoing academic research. 6. Applications from suitable female candidates will be welcome. 7. Applications received after **15th July, 1999** will not be considered. 8. Applications must be submitted alongwith copies of all required documents. 9. This Ministry does not supply Application forms. 10. In case the candidate does not hear anything by 15.8.99, it may be presumed that he/she has not been selected for the award. 11. The decision of the Selection Committee with regard to selection or otherwise shall be final. 12. Canvassing in any form will disqualify a candidate. Application may be sent to the **Secretary, Ministry of Human Resource Development, Department of Education, External Scholarship Division, E.S.1. Section, A.1/W.3, Curzon Road Barrack, Kasturba Gandhi Marg, New Delhi-110 001, latest by 15th July, 1999 (Thursday).**

FORMAT OF APPLICATION

Recent Passport
size photograph
duly signed to be
pasted

1. Name of the scholarship scheme
2. Subject (indicate any one of the subjects given in the advertisement)
3. (i) Name of the Candidate (in Block letters)
   (full mailing address with Pin Code and Telephone number, if any)
   (ii) Full name of Father/Mother/Guardian
   (iii) Marital Status
4. Date of birth and the state to which the candidate belongs.
5. Whether member of SC/ST, if so, give full particulars
   (A certificate from the competent authority should be attached).
6. Academic record starting from High School/Hr. Secondary onwards :

Name of the University/Institute	Exam.(s) passed	Year of passing	Division/Class with position, if any*	Aggregate % of Mark obtained (Not rounding off)	Subjects taken
1	2	3	4	5	6

*In case no Division/Class is awarded and only grading is done, exact percentage of marks and conversion formula adopted may be mentioned.

7. (a) Details of Professional/Practical Training and Research Experience, specifying period and number of papers published.
   (b) Details of experience after obtaining requisite educational qualifications :

Name of Orgn./ Firm/Industry where employed	Date of Appointment	Date of Leaving	Post held	Main Duties	Scale of Pay	Total Pay	Reason for leaving
1	2	3	4	5	6	7	8

8. Name, Designation and address of two referees who are acquainted with the work of candidate.
9. Have you been abroad? If so give full particulars of the country and period (specific date) of stay. Also mention the date of return to India (purpose of visit also be indicated).
10. Proposed programme of training specifying details on a separate sheet.
11. Also specify :
    (i) The work at present engaged in;
    (ii) Future plans/prospects after the proposed training;
    (iii) Nature and Programme of training desired;
    (iv) How are these related to the technical or economic development of India? Please enclose a write-up of about 500 words.
13. **Declaration :** I certify that foregoing information is correct and complete to the best of my knowledge and nothing has been concealed/distorted. I understand that if at any time I am found to have concealed any material information, my selection shall be liable to summary termination without notice and compensation.

Signature of Candidate

Date :

Place :

davp 99/204

ISID-99

The Institute of Transport Management, Andhra University recently organised an International Seminar on Infrastructure Development among SAARC countries (*ISID-99*), in collaboration with Centre for SAARC Studies, Andhra University. The main theme of the seminar was to evolve strategies for increasing regional co-operation in the development and optimisation of infrastructural facilities such as Transport, Power, Communications and also to identify feasibility levels in the development and optimisation of infrastructural facilities such as Transport, Power, Communications and also to identify feasibility levels in the development of inter-country linkages in these sectors. The seminar also aimed to discuss the problems, bottlenecks and deficiencies likely to confront these activities in future. As many as 70 experts in the areas of Transportation, Power and Communications including Sri Fazlur Rehaman, Media Consultant, Bangladesh and Mr. Rohit N. Guttee, High Commissioner, Mauritius High Commission, New Delhi participated.

Prof. R. Radhakrishna, Vice-Chancellor, Andhra University in his inaugural address stressed the need for collaborative research and emphasised full utilisation of the earmarked funds for collaborative research. He explained that the intra SAARC exports & imports were less than two per cent of their combined GNP. The SAARC Countries depended more on developed and other middle income countries outside the region than amongst themselves. The low intra-regional trade could be due to the political mistrust among the countries. He opined that India should take the lead in enhancing co-operation among SAARC nations as it had abundant natural resources.

Sri T.H. Chowdary, Technical Adviser to CM, Govt. of A.P. on Telecommunications & Director, Centre for Tele-communications and Management Studies, Hyderabad, who presided over the function, emphasised the need for co-operation among SAARC countries for infrastructure development. He felt that it had become imperative for SAARC countries to forge effective regional co-operation for harnessing and optimising their potential in infrastructure build-up and understanding emerging technologies to face the challenges of globalisation. He identified sharing of expertise and experience through joint ventures in infrastructure development, inter-country linkages and collaborative projects as some of the immediate priorities of SAARC countries.

Prof. D. Panduranga Rao, Director, ISID explained the scope and objectives of the seminar. Dr. D. Swaminadhan, Former Member, Planning Commission, Govt. of India, New Delhi released the Souvenir and emphasised the significance of the seminar in the present context.

In his keynote address Prof. R. Ramprabhu, Adviser, AICTE, New Delhi, while highlighting the importance of promoting efficient and responsive delivery infrastructure services, felt the need for a paradigm shift in the policies concerning issues like managing the infrastructure in a business like manner, inducement of healthy competition and sense of responsibility.

Dr. D. Swaminadhan presided over the panel discussion. Sri T.H. Chowdary was the lead discussant, Sri Rohit Guttee, Sri Fazlur Rehman, Sri Shiva Manohar, Sri C.K. Radhakrishna, GM, Telecom, Vizag Division, Prof. V. Balamohan Das, Prof. B.V. Rama Rao, Prof. I.V. Muralikrishna, Dr. T. Nirmala Devi, Sri K.B. Arunachalam and Sri Gurudas Gupta were the other discussants.

Dr. Swaminadhan emphasised the need for sharing of experiences in various aspects. Sri. T.H. Chowdary stressed on the aspect of demonopolisation of public sector to increase competition. Sri Rohit Guttee opined that Mauritius also wished to be a partner among SAARC. Sri Fazlur Rehman, felt the need for upgradation of infrastructure for regional co-operation among SAARC countries. The opportunities available in maritime sector were explained by Sri Siva Manohar, Manager, Shipping Corporation of India, Chennai. As per Sri C.K. Radha Krishna, lack of massive planning was the main drawback and he desired lot of thrust be given at the planning stage. Prof. V. Balamohan Das, Dept. of Commerce & Mgt Studies, Andhra University stressed the role of India in seeing that mistrust was wiped out among the SAARC countries. He also emphasised the need to share the knowledge among these countries.

Prof. B.V. Rama Rao, Former

Principal, Railway Staff College, opined that social cost benefit analysis should be adopted for all infrastructural projects and that the projects be funded in such a way that they brought earnings to the govt. He identified the need for co-operation in Training, Development and Research.

Prof. I.V. Murali Krishna, Centre for Remote Sensing, JNTU, Hyderabad felt that internet should be a tool for co-operation. Dr. (Mrs) Nirmala Devi of Centre for SAARC studies, A.U. explained the progress of SAARC activities, the need for and intra regional and inter regional infrastructure development in the SAARC Countires. VUDA City Planner, Sri Arunachalam expressed the urgent need to have a strong political will for feasible co-operation and talked about the development of Visakhapatnam with the co-operation of neighbouring countries.

Prof. N.D. Raj in his paper "Poverty Alleviation and Infrastructure Development : Cross Country Experience" explained the problems associated with infrastructure development and the need for structural transformation and sustained poverty eradication, instead of poverty alleviation.

Dr. P. Krishna Prasad from School of Distance Education, Andhra University felt that multinationals had failed in fulfilling their job of developing SAARC countries. They should consider themselves as social entrepreneurs. Sri Gurudas Gupta of NSDRC identified the gap in infrastructure dissemination.

The seminar was spread over five technical sessions devoted to Communications, Shipping and Air Transport, Road and Rail Transport, Power, and Internet/E-mail/Software/IT respectively.

Prof. Afzal Mohammed, Vice-Chancellor, Dr. B.R. Ambedkar Open University, Hyderabad in his valedictory address, underscored the need for expediting the process of regional co-operation between the SAARC countries which shared common resources and therefore had to rely on each other for exploiting and optimising the potential. Prof. K.V. Sivayya, Director, Dr. N.S. Kolla School of Business, Vizag felt that mutual distrust among the SAARC members was the major irritant in establishing effective regional co-operation. This was a result of lack of political will on the part of the leaders who were given to domestic and political compulsions. Mr. N. Dhana Raju, I/c, Chairman of VPT presided. Prof. B. Satyam, Rector, Andhra University, expressed the need to undertake collaborative development of such infrastructure on more liberal terms even bending down below the profitability line. Mr. Dhana Raju said that India and Bangladesh together could extend their expertise in tele-communications and India's knowledge in Information Technology could be made available to the SAARC countries on more liberalised terms. Prof. M. Jagadeswara Rao, Dean of Academic Affairs, opined that to achieve inter country linkages among SAARC countries was a very difficult task, even though benefits that could be derived from these inter country projects were immeasurable. He concluded that it required sustained mutual effort from the concerned governments which should pursue these issues with great diligence and persistence and from a broad perspective.

Recommendations of ISID-99

The Seminar recognised that in the context of global village, SAARC countries could not afford to live in isolation but were to be directed by pragmatic common sense and realistic economies instead of being misguided by political jingoism. Many thought provoking suggestions were given for the strengthening the infra-structural basis of all SAARC nations by harnessing the latest potential in the transport linkages and exploitation of natural resources with the vast army of skilled and cheap manpower.

After detailed deliberations, the following recommendations emerged :

1. SAARC members should end mutual suspicion and distrust for common good and that the 'Big Brother' India should take the lead in initiating a political dialogue between the seven member nation for building up confidence.
2. It called for social mobility of people through measures as relaxation of visa procedures and mobility of goods and services on the lines of the beginning made between India and Bangladesh.
3. The Seminar wanted the SAARC Nations to provide for liberal exchange of scholars between them for in-depth study on the common issues at stake and for evolving solutions besides setting up of expert committes to work out modalities for effective co-operation.
4. SAARC countries should muster political will and commitment to forge effective regional co-operation in various areas for mutual good and co-operation.

Transport

The SAARC countries along with other south Asian countries may collaborate in the following areas.

1. Establishment of regional transportation network such as the Asian Highway project and Trans-Asian Railways etc.
2. Development of Inland Waterways, with special emphasis on transit facilities for land locked countries.
3. Development of regional air linkages by means of pooling arrangements among South Asian Airlines, regional aircraft maintenance and training facilities. A South Asian Regional Airlines could also be started.
4. Development of uniform rules and regulations on a rational basis to facilitate faster movement of goods among South Asian Countries as also simplification of immigration and custom rules for promotion of South Asian regional co-operation.
5. Establishment of uniform transport and communication tariff structures within SAARC region.
6. Development of more maritime training Institutes to train seafarers and supply more Indian SAARC seafarers in the international market.
7. Improvement of the performance of minor ports and review the actions of unviable ports.
8. Attracting more investments to develop ports and terminals and infrastructure to meet the trade requirements and avoid heavy demurrage charges.

Power

1. Promotion of trade in conventional energy sources such as coal, natural gas and hydropower among the South Asian countries because of geographic proximity.
2. Information concerning research and operational experiences should be exchanged freely among SAARC countries so as to prevent duplication of efforts.
3. The advanced countries like India, Pakistan should train personnel of the other SAARC countries in designing, manufacturing; installing and maintaining energy systems.
4. Co-operation is a long-term concept and joint R&D should help in building up regional scientific and technological capabilities. Collective staff sufficiency in the long term can be achieved through joint R&D and technical co-operation in the field of energy.

Communications

1. India's experience in space information and technology may be shared by the SAARC countries on a continuous basis.
2. SAARC Federation of Commerce & Industry should prepare a draft plan for fostering regional cooperation among member countries in IT section.
3. The SAARC-IT literacy mission should be launched. Under this mission, citizens be trained in the use of all IT Services like tele-banking, tele-machine, tele-library, electronic communications etc. This mission should make efforts to universalise IT and IT based education at all levels of the education pyramid of the member countries.
4. SAARC high-tech city with the joint collaboration of member countries should be established to provide software development inputs and IT related equipments.
5. India should initiate establishing the Software Technology Park (STP), Domestic Tariff Area (DTA) and Export Processing Zones in collaboration with SAARC member countries.
6. SAARC Software Export Promotion Council may be established to encourage software export of the region and to secure International Quality Certificate such as ISO-9000 which would enhance their credibility and dependability in global market.

CIES Annual Conference 2000

The Year 2000 Comparative and International Education Society (CIES) Annual Meeting will be held at San Antonio, Texas, from March 8-12, 2000. The theme "Facing the 21st Century : What Do We Know, What Can We Contribute?" will focus on the contributions that comparative and international education can make to not only theory-building about education-society relations and to more enlightened education policy formulation and implementation, but to greater international understanding and ultimately to global peace and social justice. As with this year's theme, special attention will be given to the contributions of our field to teacher education and curriculum development.

The conference website has connections to the San Antonio Chamber of Commerce (SACC) web page, which contains very useful information about cultural attractions, events, recreational and shopping opportunities, and various city maps.

The Year 2000 Conference, which is being co-hosted by Indiana University and the Education Alliance of the Univesity of Texas San Antonio, should be a delightful, intellectually engaging, culturally enriching, and socially meaningful experience.

For further details, please visit the conference website-http://www.indiana.edu/~comped

ENPRO '99

Motilal Nehru Regional Engineering College, Allahabad is organising a one week workshop on "Environmental Protection Through Integrated Waste Management" on 25-30 October, 1999 followed by a one day National Seminar of "Geotechnical and Environmental Aspects of Managing Municipal Solid Waste" on 30 October, 1999. The workshop would cover a course content encompassing various aspects of waste management through expert lectures and panel discussions. The seminar would be focussing on management of municipal solid waste which in itself has reached an alarming status in the present circumstances.

The Workshop will cover the following sub-Themes :

1. *Introduction* : Scope, importance, global and local environmental issues, waste classification, disposal practices.
2. *EIA and auditing* : Framework of EIA, methodologies, applications, Environmental audit.
3. *Waste disposal in air, water and land* : Environmental implications and world standards.
4. *Waste interactions* : Waste-waste interaction, waste-geohydrological interactions, contaminant transport through air, water and land.
5. *Waste minimisation* and utilization technologies.
6. *Design of solid waste disposal systems :*
   - Site selection and characterisation
   - Waste transportation
   - Design and operation of landfills
   - Closure and post-closure care, long term monitoring, instrumentation and leachate treatment, landfill site utilisation.
7. *Design, construction and maintenance* : Ash disposal systems, ash ponds, dykes and dams, tailing dams and embankments.
8. *Air Pollution* : Detection, instrumentation, management, transport modelling, health and environmental problems.
9. *Land Remediation and reclamation* : Remedial actions, classification and options, remedy selection, strategies, reclamation of ash ponds and other waste disposal sites.

Further details may be had from Dr. Mahendra Singh, Org. Secretary, ENPRO '99, Department of Civil Engineering M.N.R. Engineering College, Allahabad-211 004 (India). E-mail : enpro99@ganga.mnrec.ernet.in

ADINET and Community Services

The Ahmedabad Library Network (ADINET) has completed four years of its existence in February 1999. ADINET provides various kinds of value added information services not only to the participating institutions but also to the public. ADINET is trying to place the literates of Ahmedabad as active members of Information Society.

In conjunction with the Librarians' Day-'99, which ADINET celebrates every year on the birth anniversary of Dr. S.R. Rangnathan, Father of Indian Library & Information Science, on August 14, it proposes to organise a seminar on "ADINET and Community Services". The Seminar is intended for Library Professionals, Academicians, Researchers, Students and other Individuals interested in Library and Information services.

Further details may be obtained from Shri S.R. Thakore, Honorary Director, Ahmedabad Library Network (ADINET), C/o, INFLIBNET Centre, Opp. Gujarat University Guest House, Navrangpura, Ahmedabad-380 009. Fax : 079-6300990, E-mail : adinet@wilnetonline.net and root@adinet.ernet.in

Virtual Instrumentation Lab

National Instruments Inc (NI), USA, and the Coimbatore-based PSG College of Technology plan to set up a virtual instrumentation (VI) laboratory at the premises of PSG College, with an initial capital outlay of $41,000.

An MoU is reported to have been signed to formalise the tie-up between the two partners. The proposed VI Lab would be the first of its kind in south India and second in the country after IIT, Kanpur.

The VI Lab is expected to teach virtual instrumentation concepts and tools to students and also for the industry. Plans are on to introduce virtual instrumentation as a special course and/or an elective subject in all semesters of PSG Tech's curriculum.

News from Agricultural Universities

Training in Project Planning

A 2-week training course on project planning concluded at CCS Haryana Agricultural University with a fervent appeal that added attention should be given to the development of human resource in the country. Making appeal, Mr. Dharamvir, Commissioner, Hisar Division and Vice-Chancellor, Guru Jambheshwar University, said that no project would yield the expected results unless the manpower involved in the implementation of the project was fully trained.

The course conducted by the Academy of Agricultural Research and Educational Management, CCSHAU was meant for the officers of the State Department of Agriculture.

Mr. Dharamvir observed that the countries which made good use of their human resource were atop the development process. "They do have the socio-economic problems as we face but they have made good use of the available manpower", he said.

Dwelling on the present pace of development of the farm sector, he said it was not commensurate with the vast agriculture human resource of the country. He called upon the participants to understand the problems of the farming community and design plans to ameleorate their economic status.

Presiding over the valedictory function, Prof. J.B. Chowdhury, Vice-Chancellor of the host varsity stressed upon meticulous planning and implementation of all the development projects. He asked the participants to work out plans and projects which might benefit all strata of farmers.

According to Dr. A.C. Gangwar, Course Director, the focus of the training was to enhance the capability of the participating agriculture officers in project identification and formulation, project appraisal and implementation.

News from Abroad

Researchers Grow Artificial Arteries

Researchers have used cells from pigs'arteries and a spongy synthetic tube to grow artificial arteries in a simulated fetal environment.

While artificial arteries have been grown before, the scientists said the new ones were the closest approximation of real arteries ever created. Such artificial blood vessels might someday be used to replace coronary arteries in people with heart disease.

In a common surgical procedure, surgeons take a vein or an artery from some other place in the body and graft it onto a coronary artery to bypass a diseased and constricted part of the blood vessel. But many patients with heart disease don't have arteries that are healthy enough for use in such grafts.

Researchers at Duke University, the Massachusetts Institute of Technology, and other institutions worked on the artificial arteries, which were grown in a "bioreactor", that bathed them in nutrients. Smooth muscle cells filled in the spaces in the synthetic tube. As other cells grew over the tube in layers, the tube largely dissolved. After about 10 weeks, the arteries were grafted back into pigs.

The scientists said the blood vessels looked like real arteries, were as strong as real arteries, and could hold a suture like real arteries. But they said the advance would not translate instantly into a medical application, because human smooth muscle cells are more difficult to grow in the laboratory than similar cells from a pig.

Michigan Scientists Create Artificial Kidney

Researchers at the University of Michigan at Arm Arbor have created the first bionic kidney — an artificial kidney that includes living kidney cells.

When it was tested with dogs whose kidneys had been surgically removed, the "bioartificial kidney" functioned well — in some cases, as much as half as effectively as a natural kidney in removing wastes from the dogs' blood.

Dialysis — the filtering of the blood by an external machine — also can remove wastes from the blood, but the artificial organ performed other kidney functions as well, such as maintaining the proper level of electrolytes, or molecules that can conduct electricity in water. The researchers were led by H. David Humes, a professor of internal medicine at Michigan's medical school.

The artificial kidney was too large to be implanted in the dogs. The researchers created a cylindrical membrane whose inner surface was coated with kidney cells from pigs. As blood from the dog circulated around the outside of the membrane, the kidney cells removed wastes from the blood and deposited them inside the inner space of the cylinder.

BOOK REVIEW

A Welcome Addition

M.L. Bhatia*

K.K. Sinha, Business Communication, New Delhi, Galgotia Publishing Company, 1999. Pp. 606. Rs. 195.

Communication is critical to the success of any organisation, more so to a business organisation where the emphasis is on the bottom line. It links not only the various component of the organisation but also its internal world with the external world. It has a significant impact on the ultimate effectiveness of the total organisation. It is through communication that the information, ideas, attitudes or emotions get to be conveyed from one person to another, from one person to a group or *vice versa*, and from one group to another.

In today's dynamic environment, information is the lifeblood of business. Information based systems such as MIS (Management Information System), DSS (Decision Support System), and SIS (Strategic Information System) all rest on communication. It lies at the very heart of management. Powerful concepts in management such as participation, empowerment and involvement revolve around communication. No manager can be effective in his job unless he is able to communicate. Communication is the most essential single skill, said Sir John Harvey-Jones. Professional and result-oriented organisations always crave for managers who can communicate persuasively and competently. Percey Barnevik of ABB once said that he spent one-tenth of his time deciding on strategy, and the rest communicating it. Much of the life (may be nine-tenths) of a manager is spent in communicating, one way or the other.

Unfortunately, however, while framing the academic curricula, there has been a general lack of appreciation or even apathy for the subject of business communication in the Commerce and Management streams. This may, perhaps, partly be due to the general lack of formal training in communication tools and techniques. The courses in Management and Business often miss out communication entirely or significantly. Though there are separate courses on marketing, finance, operations, strategy and so on, communication is often avoided as either too simplistic, unimportant or something the managers do automatically any way. Communication is too important to be ignored or treated so lightly. It demands practice, coaching and training. And, like the other skills of management it can be learned. Happily, of late, slowly but surely, business communication is emerging in its new, seemingly more sophisticated *avatar* "corporate communication" which has been gaining increasing recognition.

Sinha's 63-chapter work on Business Communication is a comprehensive attempt to explain the concept and process of communication in general, and business communication in particular. The book is divided into six parts. Part I gives an overview of communication and has 24 chapters, ranging from the meaning and nature of communication to the purpose, dimensions and functions to the various forms of communication. In business particularly, there is no substitute to face to face communication which is considered 90% more effective than written or printed messages. Some chapters in this part also deal with various communication situations e.g. conflict and negotiation, group decision making, interviews, advertisements etc. The barriers in and guidelines for effective communication are also dealt with in two separate chapters. Part II has 9 chapters which deal with various aspects of effective business communication. Part III in particular deals with business correspondence. The 21 chapters cover several topics from essentials of business communication to various facets of or types of situations in which business communication is used. Part IV focuses on intra-organisational communication. The various forms of and the need for intra-organisational communication in different situations are discussed. This part has 8 chapters. Part V deals with various modes of external communication, and part VI, apart from providing some guidelines for essay writing, also contains 22 small essays on some popular and contemporary topics.

Besides conclusion, each chapter, toward the end, highlights the key points and provides review questions. Ample illustrations are provided in the text, for example, samples of speeches and ads., in chapters 18 & 19 respectively. The main points of the speeches are

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Professor of Management, School of Management Studies, Indira Gandhi National Open University (IGNOU), Maidan Garhi, New Delhi-110 068.

also commented upon. The book has an Index.

Written in simple and intelligible English, Sinha's book is a sort of handbook on business communication. Its extensive coverage leaves practically nothing that is conceivable on communication. Parts I & II serve as the necessary context for business communication dealt with in the later parts of the book. The book seems to be targeted at students at the undergraduate level pursuing Commerce and Management programmes and also candidates preparing for some professional examinations e.g. company secretaryship. Such students will find this book highly useful, and whose purpose it can serve very well.

Not only should the book serve the students pursuing the course on Business Communication but also students pursuing courses such as Management Functions, Organisation Behaviour etc, whose syllabi invariably include topics that are dealt with in chapters 2,4,5,9,13 & 14. The book has some novel features in that topics like para-linguistics and proxemics, generally left untouched in books on communication, have also been discussed.

Anybody who has to do something with communication in English language will find the contents of Part II particularly interesting and useful. A few minutes/hours spent in reading this part would be well worth the time.

A glossary of key words/terms at the end of the book could have enhanced the value of the book. Chapters 31 to 33 could have been given as Appendices, instead of chapters. Further, communication process could have been more adequately covered. Some other barriers that could be included in Part I in the concerned chapter are : snap reaction, time constraints, stereotyping, hallo effect, etc. Communication in crisis situations is a topic worth considering for inclusion in the next edition.

Communication skills that can make for effective communication include empathy and openness to feedback. Transactional analysis is a technique that has considerable potential for understanding and improving communication. While dealing with the subject as lively as communication, one feels that there could have been more use of diagrams, graphical and pictorial displays, particularly in chapters 1 and 4.

The 606-page book, with reasonable quality of paper and good printing, is moderately priced at Rs. 195. The book is a welcome addition to the scanty literature on the subject of business communication. ❑

SHRI LAL BAHADUR SHASTRI
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(Deemed University)
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	Vocational Study - Computer, Hindi, Sanskrit Courses available for Shastri students			
2.	Acharya	2 Years	M.A.	Shastri or B.A.(Sanskrit) three year degree course with minimum 40% marks
3.	Shiksha-Acharya	1 Year	M.Ed.	Shiksha Shastri / B.Ed. (with Sanskrit teaching) with minimum 50% marks
4.	Vidya-varidhi	2 Years	Ph.D.	Acharya / M.A.(Sanskrit) minimum 55% marks in aggregate.
5.	Vachaspati		D.Litt.	Candidate must have Vidyavaridhi (Ph.D.) degree from Vidyapeetha or Rashtriya Sanskrit Sansthan or any other University established under UGC Act, 7 Years before the date of Registration to Vachaspati Degree.

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The last date for receipt of duly filled in application form is 30-07-1999 and with late fee upto 16-08-1999.

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SANSAR CHAND
REGISTRAR

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities (February-March, 1999)

BIOLOGICAL SCIENCES

Biotechnology

1. Ramachandra Kini K. **Biochemical and molecular analysis of variability in sclerospora graminicola and resistance mechanism in pearl millet.** (Dr Shekara Shetty H), Department of Biotechnology, University of Mysore, Mysore.

Botany

1. Amrit Pal Singh. **Taxonomic studies of subfamilies arctiinae and lithosiinae (Arctiidae : Lepidoptera) from North East and North West India.** Department of Life Sciences, Punjabi University, Patiala.

2. Jagdeesh Kumar C K. **Isolation, charaterization and mass production of Beauveria Bassiana, an antagonist to coffee berry borer.** (Dr Niranjana S R), Department of Botany, University of Mysore, Mysore.

3. Joseph, Valsamma. **Algae in industrial effluent treatment.** (Dr Ammini Joseph), Department of Botany, Cochin University of Science and Technology, Cochin.

4. Visalakshi M. **Ecophysiology of certain weedy species of genus Cassia L at Khammam.** Department of Botany, Kakatiya University, Warangal.

Genetics

1. Bhrot, Narender Parkash. **Genetical analysis of wild pomegranate (Punica granatum Linn.) for pome growth ecological and quality characters.** (Dr C V Sarswat), Department of Genetics, Dr Yashwant Singh Parmar University of Horticulture and Forestry, Solan.

2. Saravanakumar Thiru D. **Studies on genetic polymorphism and PCR based molecular diagnosis of clinically important mycobacterium SP infection in tuberculosis and aids patients.** (Dr Kunthala Jayaraman), Department of Genetics, Anna University, Chennai.

Zoology

1. Ashok Kumar Sinha. **Studies on some aspects of diapause physiology of the tropical tasar silkworm, antheraea Mylitta drury (Lepidoptera : Saturniidae).** Department of Zoology, University of North Bengal, Darjeeling.

2. Tahseen, Sofia. **In vitro biochemical effects of Tolzan on two amphistomes (Paramphistomum cervi and gastrothylax crumenifer).** Department of Zoology, Kakatiya University, Warangal.

EARTH SYSTEM SCIENCES

Geology

1. Bhattacharyya, Pramathesh. **The fission track ages of some co-genetic minerals in the granitic rocks emplaced into the precambrian gneisses of central Assam-Meghalaya Plateau.** (Prof C C Bhattacharjee and Prof S C Goswami), Department of Geology, Dibrugarh University, Dibrugarh.

2. Reddy, S Srinivas. **Petrology, geochemistry and petrogenesis of Kunavaram-Vinayakapuram alkaline Gneiss belt, Khammam district, Andhra Pradesh.** (Prof V Madhavan), Department of Geology, Kakatiya University, Warangal.

3. Singh, Ajay Kumar. **Geomorphology, sedimentology and pedology of the intermontane Dehradun valley, Northwest Himalaya.** Department of Earth Sciences, University of Roorkee, Roorkee.

Geophysics

1. Pujari, Paras Ranjan. **Stabilized analytic signal algorithmin 2D and 3D resistivity data analysis.** Department of Earth Sciences, University of Roorkee, Roorkee.

ENGINEERING SCIENCES

Architecture and Planning

1. Telang, Milind Vasant. **A computer based decision support system for sustainable development of Southern Maharashtra region.** Department of Architecture and Planning, University of Roorkee, Roorkee.

Chemical Engineering

1. Suneeth Kumar S M. **Studies of the operation and performance of UASB reactor for the treatment of distillery spent wash.** Department of Chemical Engineering, University of Roorkee, Roorkee.

2. Swamy, Mahadeva. **Studies on the treatment of phenolic wastewaters using adsorption and immobilised whole cells.** Department of Chemical Engineering, University of Roorkee, Roorkee.

Civil Engineering

1. Arvind Kumar. **Interaction of footings resting on reinforced earth slab.** Department of Civil Engineering, University of Roorkee, Roorkee.

2. Garg, Sanjeev Kumar. **Non-linear transient dynamic soil-structure interaction with special reference to blast loading.** Department of Civil Engineering, University of Roorkee, Roorkee.

3. Mohammad Al-Smadi. **Behaviour of ring foundations on reinforced soil.** Department of Civil Engineering, University of Roorkee, Roorkee.

4. Murthy, Ramana V. **A study on swell pressure and methods of controlling swell of expansive clays.** (Prof N Babu Shankar), Department of Civil Engineering, Kakatiya University, Warangal.

5. Nema, Prabhakar. **Wastewater renovation through soil aquifer treatment system.** Department of Civil Engineering, University of Roorkee, Roorkee.

6. Saran, Sujit Kumar. **Seismic earth pressures and displacement analysis of rigid retaining walls having reinforced sand backfill.** Department of Civil Engineering, University of Roorkee, Roorkee.

Electrical Engineering

1. Muralidhara, K N **Some models for threshold voltage studies of ion-implanted gaas-mesfet.** Department of Electrical and Computer Engineering, University of Roorkee, Roorkee.

2. Srivastava, Laxmi. **Artificial neural network approach to power system voltage security assessment.** Department of Electrical Engineering, University of Roorkee, Roorkee.

3. Subrahmanyam, N. **Some aspects of intelligent control based power system stabilizers.** (Prof P V Ramana Rao), Department of Electrical Engineering, Kakatiya University, Warangal.

Electronics and Communication Engineering

1. Venkatesha M K. **Study and design of new inverter/converter thyristor circuits for various purposes.** (Dr Krishnamurthy K A), Department of Electronics and Communication Engineering, University of Mysore, Mysore.

MATHEMATICAL SCIENCES

Computer Science

1. Amal Kumar Saha. **Studies on paediatric growth problems in North Bengal Districts of India and development of a fuzzy object oriented knowledge based system for treatment planning.** Department of Computer Science and Applications,

University of North Bengal, Darjeeling.

2. Prakash Srikanta H N. **Classification of remotely sensed data : some new approaches.** (Dr Nagabhushan P), Department of Computer Science, University of Mysore, Mysore.

3. Singh, Rajender. **Study, design and establishing, relationships among software complexity metrics, faults and testability.** (Prof P S Grover and Prof D R Taneja), Department of Computer Science, M D University, Rohtak.

Mathematics

1. Agarwal, Sharad Chandra. **Some straight crack problems in elastic-plastic media.** Department of Mathematics, University of Roorkee, Roorkee.

2. Devi, Sunita. **Optimization of a large size water resources system.** Department of Mathematics, University of Roorkee, Roorkee.

3. Hassan, Saleh Mohamed. **Numerical methods for frequencies and mode shapes of plates with uniform and variable thickness.** Department of Mathematics, University of Roorkee, Roorkee.

4. Mishra, Raja Laxmi. **The study of various aspects of some non Newtonian fluids.** (Dr A Roy), Department of Mathematics, Sambalpur University, Burla.

5. Pal, Jai. **Mathematical modelling for some problems in biological and industrial systems.** Department of Mathematics, University of Roorkee, Roorkee.

MEDICAL SCIENCES

1. Batra, Roma. **Study of candida strains by colony morphology, biochemical characters and isoenzyme pattern.** Department of Medical Microbiology, Postgraduate Institute of Medical Education and Research, Chandigarh.

2. Kaur, Simran. **Alterations in gastric mucosa and mucus in common bile duct ligated portal hypertensive rats.** Department of Experimental Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh.

3. Walia, Kamini. **Spectrum of gut immunologic reactions of new V cholerae and its toxin.** Department of Exp. Medicine and Biotechnology, Postgraduate Institute of Medical Education and Research, Chandigarh.

Experimental Medicine and Biotechnology

1. Prakash, Alka. **Identification of entamoeba histolytica utilizing polymerase chain reaction and complementary DNA with a view to differentiate symptomatic and asymptomatic amoebiasis.** Department of Exp. Medicine and Biotechnology, Postgraduate Institute of Medical Education and Research, Chandigarh.

Pharmacy

1. Srinivasu, P. **Chronokinetics of some drug and drug interactions** (Prof D Rambhau), Department of Pharmacy, Kakatiya University, Warangal.

PHYSICAL SCIENCES

Applied Chemistry

1. Seema C R. **Surface properties and catalytic activity of surphate modified metal oxides.** (Dr V N Sivasankar Pillai and Dr S Sugunan), Department of Applied Chemistry, Cochin University of Science and Technology, Cochin.

Biophysics

1. Ravi Chandra B. **Role of Gangliosides in cellular signal transduction.** (Dr Preeti G Joshi), Department of Biophysics, National Institute of Mental Health and Neuro Sciences, Bangalore.

Inorganic Chemistry

1. Alam, Tanveer. **Studies on metal ferrocyanides (II) as prebiotic catalyst.** Department of Chemistry, University of Roorkee, Roorkee.

2. Atchamamba B. **Synthesis and characterization of metal complexes -acid hydrazones of some ketones as ligands.** (Dr S Sri Hari), Department of Chemistry, Kakatiya University, Warangal.

Organic Chemistry

1. Atray, Neeraj. **Kinetic and mechanistic studies of aminolysis reactions of some O-(2 & Dinitrophenyl) derivatives of cyclic ketoximes.** Department of Chemistry, University of Roorkee, Roorkee.

2. Atwal, Bhagat Singh. **New assay methods for some organic functions and their industrial applications.** Department of Chemistry, Himachal Pradesh University, Shimla.

3. Brahmaiah, A. **Ru (III) catalysed oxidation of some organic compounds by iodate : A kinetic study.** (Prof P Manikyamba), Department of Chemistry, Kakatiya University, Warangal.

4. Hazarika, Jugal. **Studies on amino oxa-thiadiazoles and triazoles : their synthesis and chemistry.** (Dr J C S Kataki and Dr S Hussain), Department of Chemistry, Dibrugarh University, Dibrugarh.

5. Jayashree B S. **Reversal of drug resistance in cancer cells and bacteria by 2-chlore-N-substituted phenoxazine chemosensitizers.** (Dr Thimmaiah K N), Department of Chemistry, University of Mysore, Mysore.

6. Nongmeikapam Anita Devi. **Transformations of 1.3-Diarylthiobarbituric acids to certain fused heterocycles and studies on their biological activities.** (Dr L Warjeet Singh), Department of Chemistry, Manipur University, Imphal.

7. Patil Shivaputra Apparna. **Synthetic studies on nitrogen heterocycles.** (Dr G S Gadaginamath), Department of Chemistry, Karnatak University, Dharwad.

8. Verma, Neena. **Determination of some sulphur and phosphorus organic compounds of agricultural and industrial importance.** Department of Chemistry, Himachal Pradesh University, Shimla.

9. Yadav, Rakesh. **Studies on organotin (IV) derivatives of amino acids and dipeptides.** Department of Chemistry, University of Roorkee, Roorkee.

Physical Chemistry

1. Prasad, Ram Yatan. **A study of quantities related to vaporization.** Department of Chemistry, Vinobha Bhave University, Hazaribag.

2. Singh, Rashmi. **Studies on the removal and recovery of mercury (II) and nickel (II) using alkylphosphine extractants and their applications to industrial waste.** Department of Chemistry, University of Roorkee, Roorkee.

Physics

1. Dudeja, Manisha. **Application of semi-classical methods to deformed and super-deformed nuclear systems.** Department of Physics, University of Roorkee, Roorkee.

2. Nageshwar, K. **Studies on the performance of optical systems with aperture shaping and shading.** (Prof T Venkat Reddy), Department of Physics, Kakatiya University, Warangal.

3. Savinder Kaur. **Relativistic and non relativistic studies of electron-atom collisions.** Department of Physics, University of Roorkee, Roorkee.

4. Vinod, G. **Studies in quantum oscillators and q-deformed quantum mechanics.** (Dr K Babu Joseph), Department of Physics, Cochin University of Science and Technology, Cochin.

Polymer Science

1. Joseph Mary. **Studies on latex reclaim and its blends.** (Dr K E George), Department of Polymer Science, Cochin University of Science and Technology, Cochin.

2. Kochubaby Manjooran S. **Preparation of useful raw meterials from refinery sludge and its utilisation in rubber processing.** (Dr A P Kuriakose), Department of Polymer Science, Cochin University of Science and Technology, Cochin.

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DINDIGUL DISTRICT,
TAMIL NAD

CORRIGENDUM

Please refer our advertisement published in the *University News* on 26/04/1999 regarding the Applications invited for various posts in the Gandhigram Rural Institute (Deemed University), Gandhigram Please note that : For the serial numbers 6 to 14 the reservation of the post will be made as per Central Government norms. The inconvenience caused to any one in this regard is regretted.

Gandhigram
Date : 22/06/99 **REGISTRAR**

BHAVNAGAR UNIVERSITY, BHAVNAGAR

Admission Notice for MCA Programme (1999-2002)

Eligibility : Graduates in any discipline (under 10+2+3 schems) with 50% and mathematics/statistics/computer science as one of the subjects at 12th standard are eligible. Candidates appeared in final year degree examinations and awaiting result may also apply.

Application form fee (including test fee) : Rs. 300/- (Rs. 150/- for SC/ST candidates on production of supporting documents)

The forms will be available from the department by producing a demand draft (not in cash) in favour of "MCA Entrance Test, Bhavnagar University" payable at Bhavnagar. Send a self addressed envelope (stamped-Rs. 17/-), if the form is required through post.

Sale of application forms : From 01.07.99 to 22.07.99 on working days between 11.00 hrs. to 13.30 hrs.

Last date of submission of completed application form : 22.07.99

Date of entrance test : 01.08.99

Direct all your correspondence/inquiries to : Department of Computer Science, Bhavnagar University, Bhavnagar-364 002.

Head
Department of Computer Science
Bhavnagar University

DAYANAND SCIENCE COLLEGE, LATUR

WANTED

Applications with full biodata are invited for the following post in Sr. College from the academic year 1999-2000 so as to reach undersigned within 15 days from the date of publication of this advertisement those who are in reserved category they should send one duplicate copy of application form to special cell Swami Ramanand Teerth Marathwada University, Nanded.

1. Industrial Chemistry — 1 Full Time (ST)
2. Zoology — 1 Full Time (SC- Ladies)

All posts are reserved for SC-ST Category.

1. Qualification, Terms and Conditions of service for those laid down by the Swami Ramanand Teerth Marathwada University, Director Education Pune & other competent authority.
2. No TA-DA will be paid.

Applicants who are already employed shall forward their applications through proper channel.

R.H. Ladda
PRINCIPAL
Dayanand Science College, Latur.

Chandrashekhar Bajpai	**Madanlal Biyani**
SECRETARY	**PRESIDENT**

Dayanand Education Society, Latur

पं. मोती लाल नेहरु विधि महाविद्यालय,

सागर रोड, छतरपुर मध्य प्रदेश-471 001

(जो डॉ. हरी सिंह गौर विश्वविद्यालय सागर से संबद्ध है) में निम्नांकित पदों पर नियुक्ति हेतु आवेदन पत्र आमंत्रित हैं :

1. प्राचार्य (पूर्णकालिक) — एक
2. सहायक प्राध्यापक (पूर्णकालिक) — चार
3. लाइब्रेरियन (पूर्णकालिक) — एक

इन पदों हेतु निर्धारित योग्यता बार कौंसिल आफ इण्डिया तथा विश्वविद्यालय के नियमों के अनुसार होंगे। महाविद्यालय द्वारा अनावेदक योग्य एवं विषय पारंगत व्यक्तियों की नियुक्ति पर भी विचार किया जा सकेगा।

आवेदन सादे कागज पर जन्मतिथि, पूर्ण शैक्षणिक विवरण, अनुभव, पता एवं फोन नं. आदि देते हुए शासी निकाय के सचिव को रजिस्टर्ड डाक द्वारा दिनांक 31 जुलाई 1999 तक महाविद्यालय के उपरोक्त पते पर भेजें।

GOVT. OF N.C.T. OF DELHI
DELHI COLLEGE OF ENGINEERING
BAWANA ROAD, DELHI-110 042

NOTIFICATION FOR ADMISSION TO Ph.D. PROGRAMME
(1999-2000)

Applications are invited on prescribed forms from **Indian Nationals** for admission to the 3-year full-time Ph.D. programme of the College in Engineering and Applied Science in the following broad areas. Civil/Electrical/Electronics & Communication/Mechanical/Production/Polymer Technology/Applied Mathematics.

The number of seats available is 15 (2 seats are reserved for SC and 1 seat for ST candidates).

Minimum Eligibility Conditions :

(a) For Engineering disciplines : Degree of Master of Engineering/Master of Technology (ME/M.Tech.) in the appropriate branch from a recognised University/Institution.

(b) For Applied Science : Degree of Master of Science (M.Sc.) in the appropriate branch from a recognised University/Institution.

NOTE : The other details are available in the College Prospectus.

After scrutiny, the short-listed candidates will be called for personal interview at Delhi College of Engineering, Delhi, for which no TA will be admissible. Scholarships are admissible as per Govt. of India rules.

Candidates duly sponsored by UGC/CSIR are also considered for admission to full-time Ph.D. Programme. This would be in addition to the number of seats mentioned above.

The selected candidates have to subsequently apply to the University of Delhi for Ph.D. registration as per Delhi University rules.

Admission information containing eligibility conditions and other details along with the application form can be obtained in person from the college cash-counter on payment of Rs. 150/- on any working day between 10.00 A.M. to 4.00 P.M. from 23.6.99. The request by post for forms accompanied by a crossed Indian Postal Order with Rs. 200/- drawn in favour of **Principal, Delhi College of Engineering**, payable at GPO, Delhi must reach the College latest by **9.7.99.**

the written request by post must contain applicant's name and address, the course for which admission is sought and three address slips of the size 10 cm. x 5 cm. containing the address to which application is to be sent.

The request for application form should be addressed to the Dy. Administrative Officer, Delhi College of Engineering, New Campus, Bawana Road, Delhi-110 042. The completed applicatin form must reach the College latest by **23.7.99.**

DY. ADMINISTRATIVE OFFICER

INDIAN COUNCIL FOR CULTURAL RELATIONS

Maulana Azad Essay Competition-1998

Last Date of Submission : 7 September, 1999

The Council, in memory of late Maulana Abul Kalam Azad, organises Maulana Azad Essay Competition every year wherein citizens of SAARC countries : India, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka are invited to submit entries for the competition. For the 1998 Maulana Azad Essay Competition, the Council invites the citizens of SAARC countries, below the age of 30 years as on 22 February 1999 to submit their entries in one of the following three languages on the topics noted against each.

Topic and Languages :

Hindi : Samkaleen Sandarbh Aur Maulana Azad (Contemporary Relevance of Maulana Azad)
Urdu : Maulana Abul Kalam Azad and Today's Problems (Maulana Abul Kalam Azad Aur Aaj Ke Masail)
English : The Role of Education and Culture in Development

Prizes in each languages :

First Prize	-	Rs.25,000/-
Second Prize	-	Rs.20,000/-
Third Prize	-	Rs.15,000/-

The essays should be neatly typed in double space or written in calligraphy (for Urdu). The participants must submit one original and three copies of their essays. Each page should be clearly numbered. The length of the essay should not exceed 5000 words.

Any participant who resorts to plagiarism shall be disqualified. A certificate/proof of the age indicating the date of birth should be enclosed with the essay.

A participant can submit only one essay in any one of the three languages. The essay may be sent through registered post/courier or hand delivered to the under noted address so as to reach ICCR by **7 September, 1999**. Essays received after the last date will not be accepted.

For any further queries and details, contact NPA Section, Indian Council for Cultural Relations, Azad Bhavan, I. P. Estate, New Delhi-110002 (Telephone No. : 3311391, 3319309 Fax No. : 3318647/3712639

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Admission Notice

APEX BODY RECOGNITIONS
INDIAN NURSING COUNCIL No.20-22/99
INDIAN ASSOCIATION OF PHYSIOTHERAPY
SEC / IAP / 99 / 10404

A. DEGREE IN PHYSIOTHERAPY B.P.T
RECOGNISED BY : Government of Karnataka
Affiliated to : Rajiv Gandhi Health University,
ELIGIBILITY : PUC/PDC/H.Sc/10+2 45% in PCB

B. DIPLOMA IN NURSING G.N.M.
RECOGNISED BY : Government of Karnataka &
Affiliated to : Indian Nursing Council
ELIGIBILITY: PUC/PDC/H.Sc/10+2 Duration : 3 yrs.

C. DIPLOMA IN PHYSIOTHERAPY D.P.T
RECOGNISED BY : Government of Karnataka &
Affiliated to : Para Medical Board Duration : 3½ Yrs
ELIGIBILITY : PUC/PDC/H.Sc/10+2 40% in PCB

D. DIPLOMA IN X-RAY TECHNICIAN D.M.R.T
RECOGNISED BY : Government of Karanataka
Affiliated to :: Para Medical Board
ELIGIBILITY: 10Std/S.S.L.C./PUC/PDC/10+2/HSC
DURATION : 2/3 yrs

DIPLOMA IN LABORATORY TECHNICIAN D.M.L.T
RECOGNISED BY : Government of Karnataka
Affiliated to: Para Medical Board **ELIGIBILITY** : S.S.L.C./PUC/PDC/10+2/HSC Duration : 2/3 yrs

F. DEGREE IN COMPUTER SCIENCE B.Sc.(Comp)
RECOGNISED BY : Government of Karnataka
Affiliated to: Bangalore University **ELIGIBILITY** : PUC/PDC/10+2/HSC with Maths/Stat. Duration: 3 yrs

F. DEGREE IN MICRO BIOLOGY B.Sc.(Mic)
RECOGNISED BY : Government of Karnataka
Affiliated to: Bangalore University **ELIGIBILITY** : PUC/PDC/10+2/HSC with Maths/Stat. Duration : 3 yrs

G. DEGREE IN NURSING B.Sc.(Nsg)
RECOGNISED BY : Government of Karnataka
Affiliated to : Rajiv Gandhi Health University,
ELIGIBILITY : PUC/PDC/H.Sc/10+2 45% in PCB

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